

Powering Care with Clean Energy: A Pathway to Environmental and Financial Sustainability

Shefaa Al-Orman Hospital (SOH)

Demographic information

- Region: Africa
- Country: Egypt
- Type of institution: Hospital
- Number of staff: 1200
- Number of beds: 150

GGHH agenda goals

- Leadership
- Energy

Case study summary

Shefaa Al-Orman Oncology Hospital implemented a solar energy system in three phases:

- Dec 2022: 450 kW installed and activated
- June 2024: 300 kW installed and activated
- Jan 2025: 160 kW installed and activated

The total capacity reached 910 kW. From January to April 2025, the system generated 534,896.6 kWh, reducing electricity use by 30.29%, cutting 265 tons of carbon emissions, and saving about USD 21,000 in just four months.

This project reflects SOH's commitment to sustainability, cost efficiency, and environmental responsibility.

The issue

Egypt's energy demand has increased significantly over the past few years with electricity being sourced from fossil fuels. Shefaa Al-Orman Hospital faced high electricity costs and environmental impact from conventional energy use, affecting operational expenses and hospital sustainability. Monthly energy bills exceeded 860,000 Egyptian Pounds, equating to approximately \$17,287. Due to our commitment to low carbon healthcare, this raised concerns about carbon emissions contributing to local pollution and climate change, impacting patient and staff wellbeing and public health. Internal audits highlighted the need for renewable solutions to reduce costs and environmental footprint, prompting the solar energy installation project.

Hospital goal

- Reduce energy costs
- Decrease carbon dioxide emissions
- Increase use of renewable energy

- Improve environmental sustainability

Sustainability strategy implemented

Shefaa Al-Orman Hospital, a non-governmental hospital that provides free treatment implemented a phased 910 kW solar photovoltaic system to reduce reliance on grid electricity. This cost-effective, renewable solution reduces carbon emissions significantly. Leadership led the strategy, partnering with reputable Egyptian institutions that donated to fund each phase, highlighting effective community engagement and the hospital's social responsibility. The phased approach enabled gradual investment, immediate savings, and long-term sustainability.

Implementation process

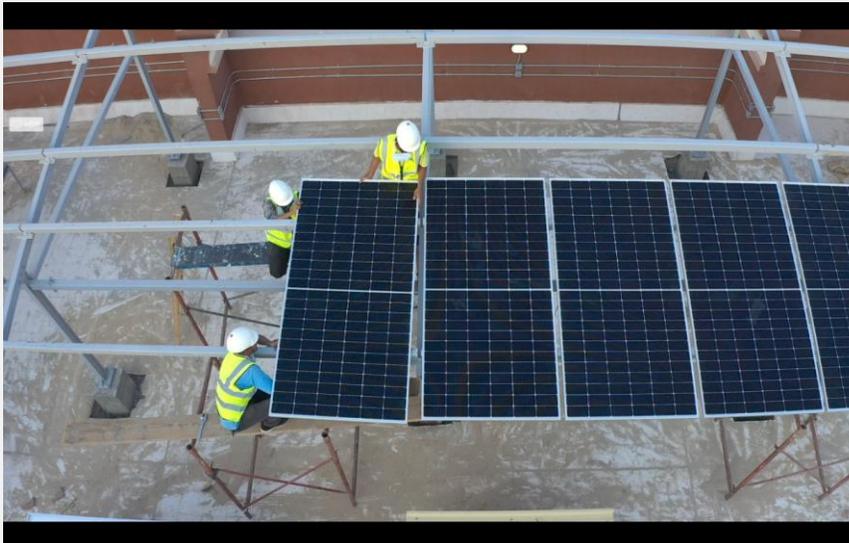
The solar project was implemented in three phases from Dec 2022 to Jan 2025. Led by hospital leadership, the initiative involved the Facilities, Finance, Sustainability, and Quality departments. The Quality team conducted a Failure Mode and Effects Analysis (FMEA) before the launch to assess risks and ensure smooth integration. This proactive assessment helped identify potential failure points in system design, installation, and operation, allowing the team to prioritize and mitigate risks—such as power fluctuation or system overload—through design adjustments and preventive measures. Decision-making focused on reducing energy costs and environmental impact, while avoiding high-cost UPS systems. Instead, daytime operations relied on solar power via inverters—covering peak energy demand—while the grid supplied power at night.

Reputable Egyptian institutions funded each phase. Staff received training on system monitoring and basic maintenance, provided by solar vendors. Minor electrical modifications were needed to connect the system.

The first phase served as a pilot, confirming performance before scaling up. The project promoted environmental awareness and behavioral change among staff. Implementation took just over two years, with quarterly reviews and ongoing training to maintain performance and engagement.



Please note that the information in this case study was provided by the GGHH member named above. Health Care Without Harm (HCWH) is not responsible for the accuracy of the information/data provided.



Tracking progress

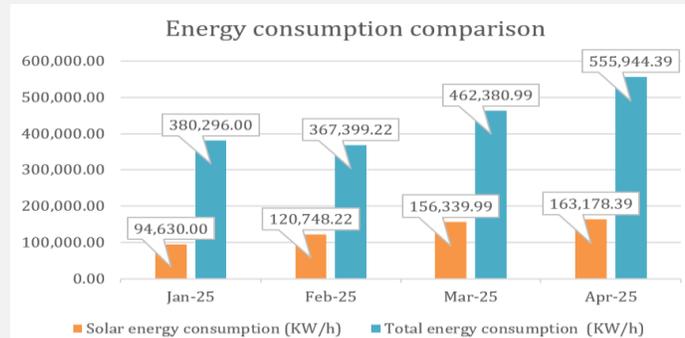
Success was tracked through solar output, cost savings, and CO₂ reduction. Progress was measured using actual energy bills, system data, and national CO₂ factors (0.49 kg/kWh). GGHH Hippocrates tools were not used, as their default factor (0.411 kg/kWh) underestimates emissions in our national context.

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Progress achieved

The project delivered clear financial, environmental, and social impacts. Over just four months (Jan–Apr 2025), the hospital saved approx. \$21 000 in electricity costs. Solar production reached 534,896.6 kWh, reducing grid dependency by 30.29% and lowering CO₂ emissions by 265 tons.

As a cancer hospital, reducing air pollution supports cleaner surroundings, benefiting patients with respiratory sensitivities and focusing on prevention outside of our hospital. Additionally, the project enhanced staff awareness, increased morale, and demonstrated effective community engagement in climate action.



Challenges and lessons learned

Key challenges included funding large-scale solar installations and managing technical integration with hospital systems. We overcame this by phasing the project, engaging strong community donors, and avoiding costly UPS systems by using a daytime direct inverter connection. Lesson: NGO hospitals can lead in sustainability by mobilizing local support and adapting smart, cost-effective solutions.

Next steps

The hospital is currently developing a fourth phase of the solar energy project, adding **an additional 430 kW**. Commissioning and full operation are expected by **the end of November 2025**, further enhancing energy savings and environmental impact.

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