



EXECUTIVE SUMMARY

STATE OF THE MARKET REPORT FOR HEALTHCARE FACILITY ELECTRIFICATION

2026 UPDATE

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Marilena Lazopoulou

Senior Energy Officer, SEforALL

EXECUTIVE SUMMARY

Healthcare electrification on a turning point

Reliable electricity is indispensable to modern healthcare. It enables affordable medical oxygen systems while powering vaccine cold chains, operating theatres, laboratories, digital health infrastructure, water supply and sanitation systems. Renewable energy enables healthcare facilities to continue operating during disease outbreaks, climate disasters and grid failures. The COVID-19 pandemic and, more recently, recurring Ebola outbreaks, climate-related disasters and increasing fuel price volatility have reinforced the strategic importance of resilient renewable energy systems for healthcare facilities.

Broader global initiatives such as Mission 300 have accelerated attention toward electrification of public institutions alongside household energy access. The World Bank has committed significant financing toward the electrification of social infrastructure through flagship regional programmes such as the Distributed Access through Renewable Energy Scale-up (DARES) and the Accelerating Sustainable and Clean Energy Access Transformation (ASCENT) programme as part of broader national energy access and development strategies.

Meanwhile, climate finance mechanisms are directly supporting healthcare electrification as a climate adaptation and resilience intervention. The Green Climate Fund supports a Save the Children programme in Malawi to adopt a holistic climate-informed approach to strengthening Malawi's health system.

At the same time, official development assistance (ODA) declined by 23% in 2025, representing the largest annual reduction on record. The termination of the Health Electrification and Telecommunications Alliance (HETA), managed by the United States Agency for International Development (USAID), and broader reductions in bilateral development assistance have exposed the vulnerability of a sector that has historically depended almost entirely on grant-funded projects.

Against this backdrop, the healthcare electrification market is undergoing a profound transformation. Governments, development finance institutions (DFIs) and private sector actors are increasingly recognizing that traditional donor-funded engineering, procurement and construction (EPC) projects alone will not deliver universal, reliable electricity to healthcare facilities. The market is progressively shifting towards nationally coordinated programmes, service-based delivery models and commercially enabled financing approaches that prioritize long-term reliability over short-term infrastructure deployment.

Market overview

This report analyses 426 healthcare electrification initiatives implemented across 73 countries, making the [2026 Sustainable Energy for All \(SEforALL\) Healthcare Electrification Database](#) the most comprehensive source of information currently available in the sector. The World Bank has emerged as the largest single financier of healthcare electrification, while the European Union (EU), the UK government, the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the World Health Organization (WHO), Gavi, the Vaccine Alliance, SEforALL and SELCO Foundation continue to play central roles in implementation, policy development, innovation and market coordination. A notable evolution since the previous report is the early but promising shift from fragmented donor projects towards coordinated national programmes supported by healthcare electrification masterplans, geospatial planning tools and integrated government coordination mechanisms.

Out of the 426 initiatives, the database includes 160 major projects launched since 2021 and spanning more than 38,000 healthcare facilities worldwide. Together, they are expected to add at least 141 MWp to the global energy mix. India accounts for the largest number of facilities through SELCO Foundation's Energy for Health programme, while Sub-Saharan Africa remains the largest regional market in terms of implementation activity.

Even if all ongoing and planned initiatives identified in the database are successfully completed, at least 286,170 healthcare facilities worldwide, including 81,407 in Sub-Saharan Africa, will still require either first-time electrification or reliable backup power. In Sub-Saharan Africa alone, closing this remaining gap is estimated to require approximately USD 2.67 billion in upfront investment, before accounting for the substantial long-term cost of operating and maintaining these systems. Importantly, this gap is dynamic rather than static. As aging renewable energy systems begin to fail, future investment requirements must address both new installations and the replacement or rehabilitation of existing infrastructure. Without sustainable operations and maintenance (O&M) arrangements, today's electrification successes risk becoming tomorrow's replacement challenge.

The report also finds that programme duration is evolving alongside delivery models. While most UNICEF and UNDP interventions continue to operate over two-year implementation cycles aligned with donor funding windows, larger programmes financed by the World Bank and the EU increasingly adopt five-year implementation periods to allow sufficient time for institutional development, market creation and the deployment of long-term service contracts.

Technology and digitalization

Declining costs of renewable energy components and the global fossil fuel crisis have further strengthened the economic case for solar-based electrification in recent years. Manufacturing of photovoltaic (PV) modules and battery cells have reached historically low prices, while improvements in system reliability, and the widespread adoption of lithium iron phosphate (LFP) batteries have made renewable energy systems increasingly capable of supporting the full spectrum of healthcare services. At the same time, system architectures have evolved from small stand-alone installations designed primarily for lighting and vaccine refrigeration to modular, scalable power systems capable of supplying large hospitals and staff accommodation.

Technological innovation is increasingly focused on improving system performance, reliability and long-term sustainability. Higher-voltage architectures for larger health facilities like hospitals reduce installation costs and improve operational efficiency; meanwhile, small health facilities rely on lower voltage inverters from 12V to 96V offering lower costs and increased safety. Several developers choose to oversize the systems and create “hub and spoke” solar mesh grids to supply excess energy to surrounding communities to cover the ongoing O&M costs for the health facilities.

Following the COVID-19 pandemic, reliable oxygen has emerged as a global health priority, driving demand for larger and more resilient energy systems capable of powering oxygen concentrators, pressure swing adsorption (PSA) plants and associated medical infrastructure. This represents a significant evolution in the market, with renewable energy increasingly supporting critical clinical services rather than only basic facility operations.

Remote monitoring systems, once used primarily to detect equipment faults, are evolving into comprehensive digital monitoring, reporting and verification (dMRV) platforms that support predictive maintenance, automated performance verification, asset management and financial reporting. These platforms are increasingly becoming essential infrastructure for service-based delivery models, enabling governments, financiers and private operators to monitor system performance in real time and verify contractual obligations in long-term service agreements.

Digital technologies are creating new opportunities to strengthen the link between energy performance and health outcomes. Emerging integrated digital platforms combine energy monitoring with facility management, geospatial planning, climate resilience assessments, health information systems and operational analytics, providing governments with a more comprehensive understanding of how reliable electricity influences healthcare delivery.

Digitalization also enables the unlocking of innovative financing opportunities. High-quality operational data generated through digital platforms can support results-based financing, facilitate the issuance of renewable energy certificates (RECs), strengthen carbon credit methodologies and reduce verification costs for climate finance.

Delivery models and market transformation

The healthcare electrification market is undergoing a fundamental transformation in both delivery models and financing mechanisms. While traditional EPC projects remain the dominant approach, the sector is gradually moving towards long-term, service-based models with blended financing approaches, shifting from grant-funded infrastructure projects to catalytic financing mechanisms that mobilize small pockets of private investment while strengthening government ownership.

Historically, healthcare electrification has relied almost exclusively on a donor-funded build-transfer model, under which development partners finance the full capital cost of renewable energy systems before transferring ownership and responsibility for O&M to governments. Although this approach has successfully electrified thousands of healthcare facilities and demonstrated the benefits of renewable energy, it has struggled to ensure long-term sustainability. As maintenance contracts expire and systems age, many governments lack the financial resources, institutional capacity and procurement mechanisms required to operate and replace these assets, creating a growing replacement challenge. At the same time, the heavy reliance on grant funding has done little to catalyse commercial investment or create sustainable healthcare electrification markets.

In response, an intermediate "EPC-plus" model has emerged, extending contractor responsibility for O&M for two to five years after commissioning. While this approach improves system reliability during the early years of operation, it does not fundamentally address the long-term financing challenge. More recently, governments and development partners have begun adopting blended financing approaches, using concessional funding strategically to mobilize commercial capital rather than financing infrastructure entirely through grants. Donor resources are increasingly deployed as catalytic capital through targeted subsidies, guarantees, first-loss facilities and risk mitigation mechanisms, while private operators assume greater responsibility for financing, operating and maintaining systems over contract periods extending five, ten or more years.

Service-based healthcare electrification is emerging through two complementary pathways. Government-led programmes, typically structured as public-private partnerships, procure long-term energy services for large portfolios of public healthcare facilities through performance-based contracts. In parallel, market-led models enable private energy service providers to contract directly with individual healthcare facilities, primarily private and faith-based institutions, demonstrating the commercial viability of healthcare facilities as energy off-takers. These models serve different market segments: government-led programmes are essential for achieving national-scale electrification of public health systems, while market-led models can accelerate deployment where commercial opportunities exist and facilities are able to pay. However, both approaches will continue to require blended finance and concessional support to ensure affordability, particularly in low-income and remote settings.

Although service-based models remain at an early stage of market development, they are gaining momentum. Since 2021, only 597 healthcare facilities have been electrified through completed service-based projects, representing approximately 4.3 MWp of installed capacity, indicating that these models remain a relatively small share of today's market. However, the future pipeline demonstrates a rapid shift in direction. The 2026 SEforALL Database identifies

2,976 healthcare facilities expected to be electrified through long-term service contracts in ongoing or planned programmes, representing more than 55 MWp of planned capacity and nearly USD 195 million in investment. Most of these programmes are supported by the World Bank and the EU in countries including Chad, Madagascar, Malawi, Nigeria and Uganda, signalling growing confidence in blended finance and service-based procurement.

The report identifies the following barriers preventing scale of sustainable models:



Limited market maturity and institutional readiness



Limited access to commercial finance



Government payment risk and uncertain revenue streams



Regulatory, policy and institutional barriers:

- Restrictive and slow public procurement rules
 - Lack of clear national policies and inter-ministerial coordination.
 - Absence of institutionalized approaches to long-term O&M in fiscal policy
 - Absence of a conducive tariff and regulatory framework
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Digital technologies, data and connectivity:

- Unreliable and expensive connectivity in remote areas
 - Data quality concerns
 - Cost and complexity of digital platforms.
 - Government procurement delays and interoperability
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Market distortions:

- Expectation of fully donor-funded capital investment
 - Competing grant-funded projects
 - Distorted perceptions of the cost of electricity
 - Reduced incentives for government ownership and private innovation
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To overcome these barriers, the report proposes the following mechanisms and conditions:



Government ownership and leadership:

- Government commitment and financial ownership
- Acknowledging the limits of traditional public asset management
- Cross-government coordination
- Institutionalizing long-term delivery



Creating bankable financing structures:

- Catalytic use of donor funding.
- Results-based financing
- Risk mitigation and payment security (liquidity reserve facilities, political risk insurance, sovereign-backed payment support)



Enabling regulatory and procurement frameworks:

- Sub-national regulatory and tariff autonomy
- Long-term concessionary legal frameworks
- Iterative, "smart" procurement design



Embracing innovation in designing revenue models:

- Affordable service fees and pragmatic financial benchmarking.
- The "energy hub" or commercial cross-subsidization model
- Minimum-subsidy competitive bidding
- Diversified revenue streams



Recommendations by stakeholder group

STAKEHOLDER	PRIORITY ACTIONS
Governments	Shift procurement from assets to services; create dedicated budget lines; aggregate demand; establish payment security mechanisms; strengthen institutions.
Donors	Use grants catalytically; finance project preparation; support guarantees; reduce transaction costs; align programmes with long-term government ownership.
Development Finance Institutions	Expand guarantees; support local currency lending; develop portfolio financing; back aggregation platforms.
Private Sector	Engage early in programme design; develop scalable portfolios; integrate digital monitoring; explore complementary revenues.
Coordinating Organizations	Develop standard contracts; harmonize procurement; maintain market intelligence; facilitate knowledge exchange.

Outlook

Across the 51 initiatives for which sufficient budget and capacity information is available, average upfront project costs are approximately USD 4,500 per kWp installed. Applying this benchmark to the remaining Sub-Saharan African gap suggests that approximately USD 2.67 billion in upfront investment would be required to solarize these facilities. Evidence from an early service-based project indicates that providing 10 years of O&M through long-term service contracts could require a total budget equivalent to approximately 70% of initial capital expenditure (CAPEX). This reinforces one of the report's central messages: **closing the infrastructure gap without financing the operational gap will not deliver sustainable healthcare electrification.**

Mission 300 represents one of the most significant opportunities to mobilize the next wave of investment. Of the six major planned healthcare electrification programmes captured in the database, three are financed by the World Bank and three by UNICEF. The World Bank has set an ambitious goal to electrify approximately 75,000 healthcare facilities under the broader Mission 300 agenda through regional programmes such as DARES and ASCENT as well as country-specific operations.

However, closing the remaining gap will require financing beyond ODA alone. Early service-based tenders suggest that, in markets with sufficient government fiscal capacity and credible payment mechanisms, grant funding can be used strategically to mobilize additional resources. In ideal cases, every USD 1 of grant funding could potentially mobilize approximately USD 0.40 in government co-funding and USD 0.30 in private capital over a 10-year period. In fragile and higher-risk markets, grant funding may still need to cover most or all long-term service costs. Private capital can nevertheless reduce upfront funding requirements by financing part of CAPEX and recovering that investment over the contract period, although the higher cost of private finance must ultimately be reflected in service fees.

A third pathway will remain necessary in countries where neither government fiscal capacity nor market conditions currently support significant private participation: continued donor and public financing of both CAPEX and operating expenditure (OPEX). Even in these markets, programmes should use fully subsidized investment to establish the enabling environment for future sustainable models by strengthening government institutions, building local markets, introducing performance-based O&M, improving procurement and payment mechanisms, and generating reliable operational data.

Substantial grant and concessional finance will remain essential to closing the healthcare electrification gap, particularly in low-income and fragile countries. The opportunity is to combine each dollar of grant funding, where conditions permit, with government co-financing, private capital, risk-mitigation instruments, and complementary climate and environmental revenues. The objective should not be to maximize private investment at any cost, but to identify the combination of public, concessional and commercial finance that delivers reliable electricity at the lowest lifecycle cost. Early service-based programmes offer two particularly promising prospects: they can substantially increase the operational lifetime and reliability of renewable energy systems compared with business-as-usual asset-transfer approaches, and they can reduce the proportion of total lifecycle costs that must be financed through grants by mobilizing government and private resources.





About SEforALL

Sustainable Energy for All has a global mandate to accelerate progress on the energy transition in emerging and developing countries. Hosted by UNOPS, we work at the intersection of energy, climate and development, partnering with governments and organizations worldwide to end energy poverty, double energy efficiency, significantly expand renewable energy and combat climate change.

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