



DEEP DIVE #2

# Data Insights

Powering Healthcare – Nigeria Market Assessment and Roadmap



# Deep-dive on Data Insights

The Powering Healthcare Market Assessment and Roadmap for Nigeria was developed by Sustainable Energy for All (SEforALL), under the Power Africa-funded Powering Healthcare Africa Project. It includes a main report, and 5 technical deep-dives.

The main report is accessible [here](#).

## Market Assessment and Roadmap: deep-dives

- 01 Deep-dive on Stakeholder Mapping and Key Policies
- 02 Deep-dive on Data Insights
- 03 Deep-dive on Technology and Costing
- 04 Deep-dive on Funding and Financing
- 05 Deep-dive on Delivery Models and Financing Mechanisms



# Data Insights



## Sources:

- NPHCDA Post Polio PHC Strategy report 2020
- Interviews with NPHCDA, VESTA, HBF, SNP Systems Data, Adewole I., Thirty-Six States and the FCT are to Share \$1.5m FG Fund for Primary Health Care. (2016)
- HSDF 2020 Health Facility Assessment for % of PHC facilities that are open 24/7
- IHP Data
- HSDF 2020 Health Facility Assessment for % of PHC facilities without water available at anytime
- Improving Primary Healthcare (Nigeria) 2008 for % of PHCs without electricity; SEforALL IEP, eHealth Africa (2021), Fraym (2018)
- NPHCDA interview quoting PHC assessment report 2018



**30% - 40%**

of PHCs are considered fully functional



**33% - 35%**

PHC facilities are open 24/7



**~ 40%**

PHCs without access to electricity



**6 - 10 hours**

Average power supply from any combination of sources



**80% - 83%**

PHCs don't use solar power



**22% - 25%**

PHCs are appropriately staffed with health workers

# Health facilities categorization and operating structure

The NPHCDA has defined minimum standards for ‘product offerings’ for each type of public facilities

<p><b>Type 4:</b> Teaching/tertiary hospital</p> <p><b>TERTIARY LEVEL</b></p>	<ul style="list-style-type: none"> <li>• Ultimate specialist units for expert referral services</li> <li>• Range of specialties in general hospitals or a specific discipline at a specialized hospital</li> </ul>
<p><b>Type 3:</b> General hospital</p> <p><b>SECONDARY LEVEL</b></p>	<ul style="list-style-type: none"> <li>• Outpatient care in basic medical specialties, inpatient care, and labs</li> <li>• Emergency care and advanced referral services</li> </ul>

Source: NPHCDA Minimum Standards



Akineowo Primary Health Centre (Ogun State)



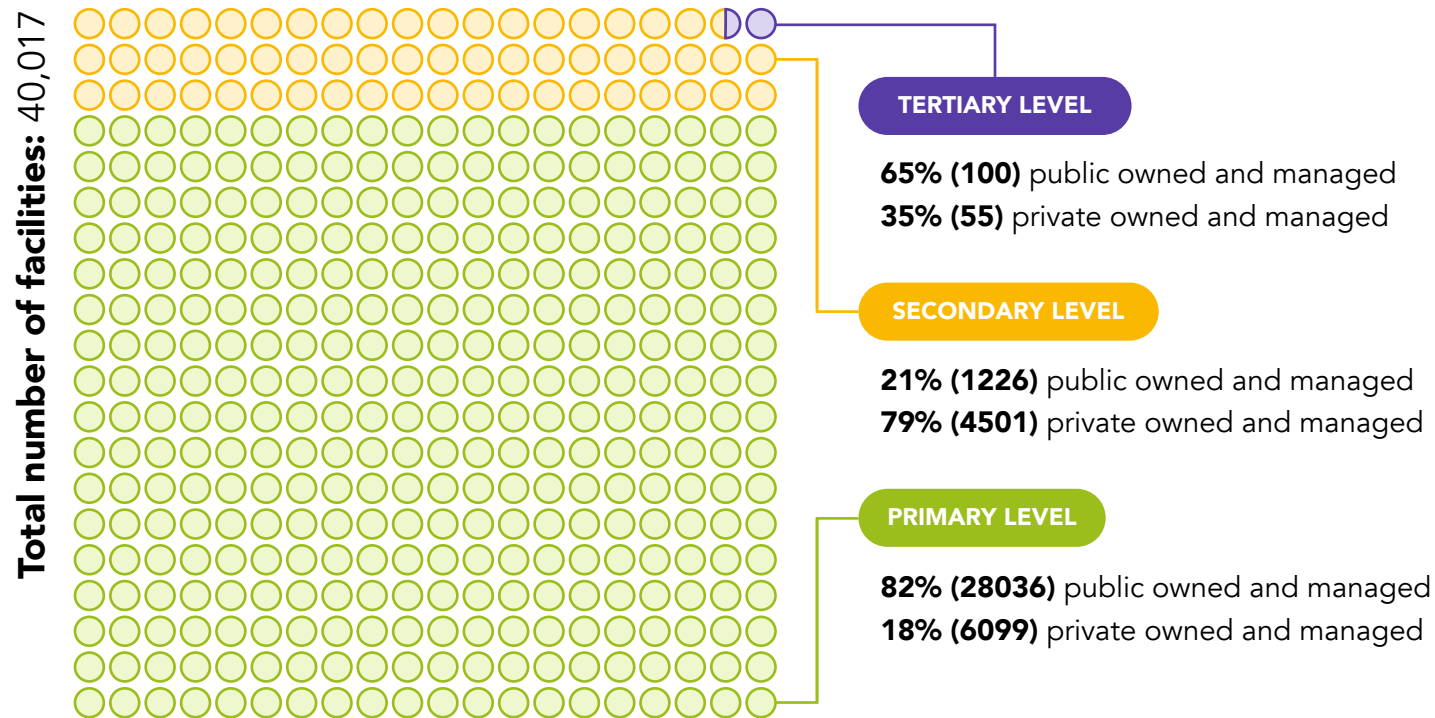
Emuli Rural Health Clinic in FCT

## Health Facilities Categorization and Operating Structure

The NPHCDA has defined minimum standards for product offerings for each type of public facilities

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<p><b>Type 2:</b> Primary Health Center</p> <p><b>PRIMARY LEVEL</b></p>	<ul style="list-style-type: none"> <li>• Mid-level, local referral services and emergency care</li> <li>• Antenatal/postnatal care, higher-risk pregnancy delivery, newborn care</li> <li>• IUD insertion, nutrition assessment, malaria treatment and other curative care</li> <li>• Injectable immunization and STI treatment, measles treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Operating 24 hours</li> <li>• Standard 13 rooms and 2 units staff accommodation</li> <li>• Serving between 10,000 to 20,000 people</li> </ul>
<p><b>Type 1:</b> Health clinic</p> <p><b>PRIMARY LEVEL</b></p>	<ul style="list-style-type: none"> <li>• Antenatal/postnatal care, low-risk pregnancy delivery, newborn care</li> <li>• Contraceptive distribution, family planning counseling, malaria treatment and curative care for common ailments</li> <li>• Injectable immunization and STI treatment, measles treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Operating 24 hours</li> <li>• Standard 5 rooms and 2 units staff accommodation</li> <li>• Serving between 2,000 to 5,000 people</li> </ul>
<p><b>Health post</b></p> <p><b>PRIMARY LEVEL</b></p>	<ul style="list-style-type: none"> <li>• Antenatal/postnatal care, low-risk pregnancy delivery if certified</li> <li>• Family planning counseling, malaria treatment, curative care for common ailments, non-injectable immunization</li> <li>• Community-based activities (e.g. outreach, health education and promotion)</li> </ul>	<ul style="list-style-type: none"> <li>• Operating 6-8 hours a day</li> <li>• Standard 2 rooms and 2 units staff accommodation</li> <li>• Serving 500 or less people</li> </ul>

## Health Facilities Data: FMOH



Nigeria has a mixed healthcare system with the majority (85.3%) of health facilities delivering care at the primary healthcare level and the private sector accounting for ~ 44% of facilities in the country.

- The Federal Ministry of Health estimates a total of 40,017 healthcare facilities in Nigeria
- The majority (85.3%) of health facilities in the country are primary healthcare centers; 28,036 of which are publicly owned with different levels of functionality
- The private sector has a major role to play as it already accounts for 44% of healthcare facilities in Nigeria

# Health facilities distribution and electrification status



## 1.4 healthcare facilities per 10,000 people

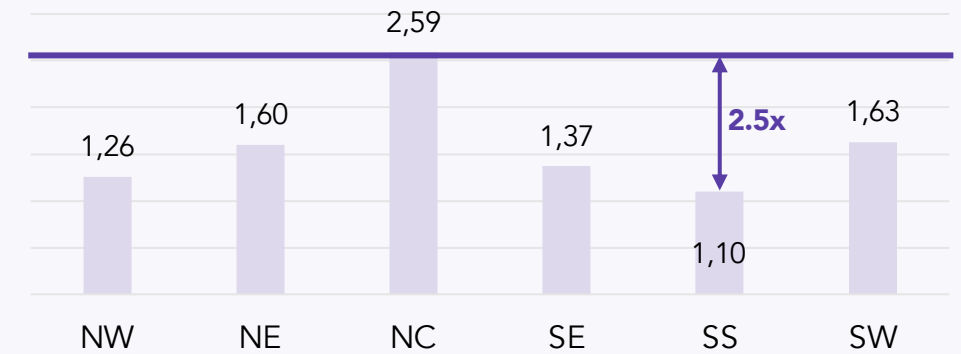
The Federal Ministry of Health estimates a total of 40,017 healthcare facilities in Nigeria

- While there are a large number of health facilities, they are distributed inefficiently and lack access to electricity, particularly for public facilities.
- Consistent with other desk review findings, HFE seems not to have improved over the years:
  - 40% of healthcare facilities in Nigeria are unelectrified (\*2021)
  - More concentration of electrified HFs in the SS,SE,SW (\*2021)
  - 36% health facilities in Nigeria have no energy access (\*\*2021)
  - 30% health facilities in Nigeria have no electricity (\*\*\*)2013)

Sources: Nigeria Population Census 2006; World Bank: Improving Primary Healthcare (Nigeria) 2008. \*SEforALL IEP, eHealth Africa (2021), Fraym (2018); \*\*Achieving universal electrification of rural healthcare facilities in sub-Saharan Africa with decentralized renewable energy technologies, EU-JRC, 2021; \*\*\* Electricity access in sub-Saharan African health facilities, Global Health Science and Practice, 2013

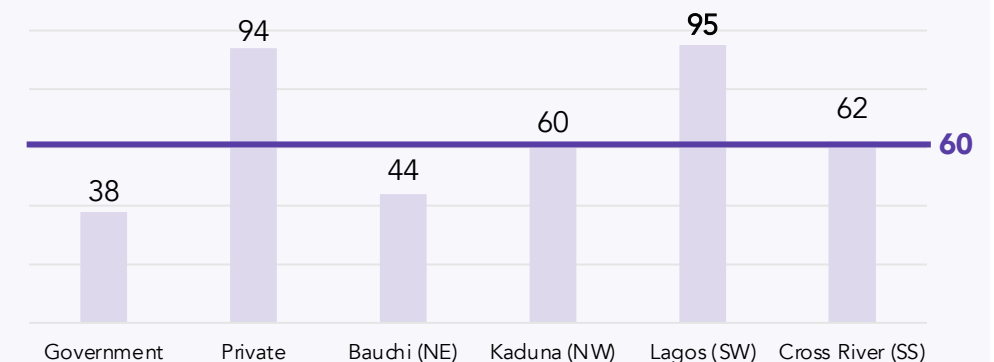
## Variation among regions

Healthcare facilities per 10,000 people



## State of health facilities in Nigeria

Facilities with electricity (%)

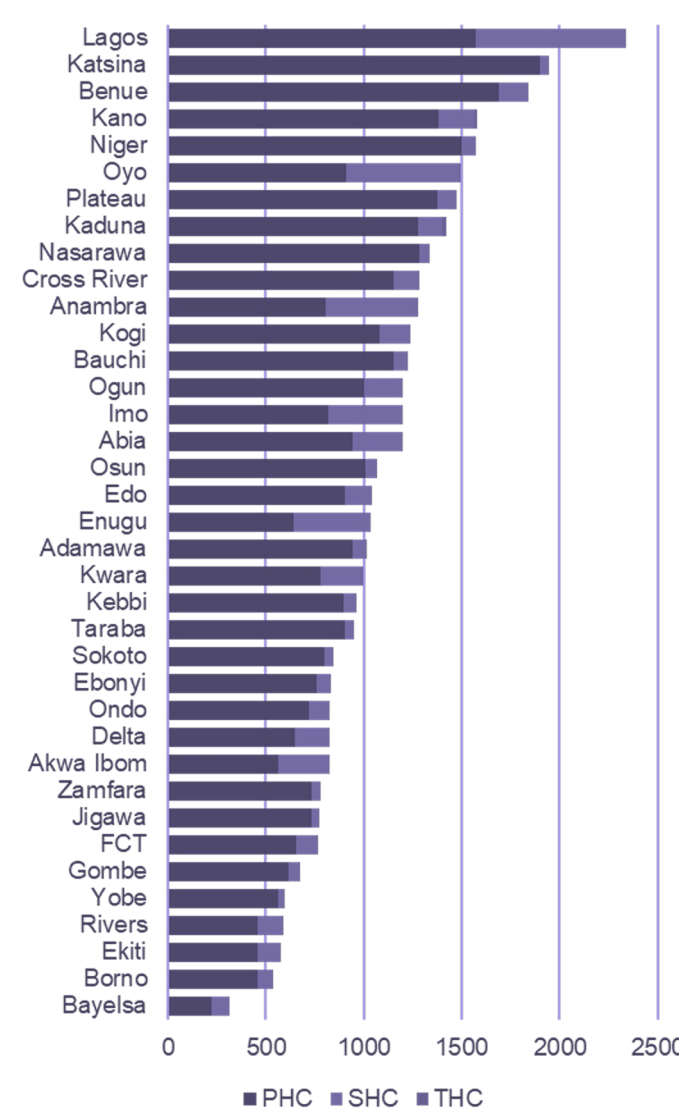


## Health Facilities Distribution Across Nigeria

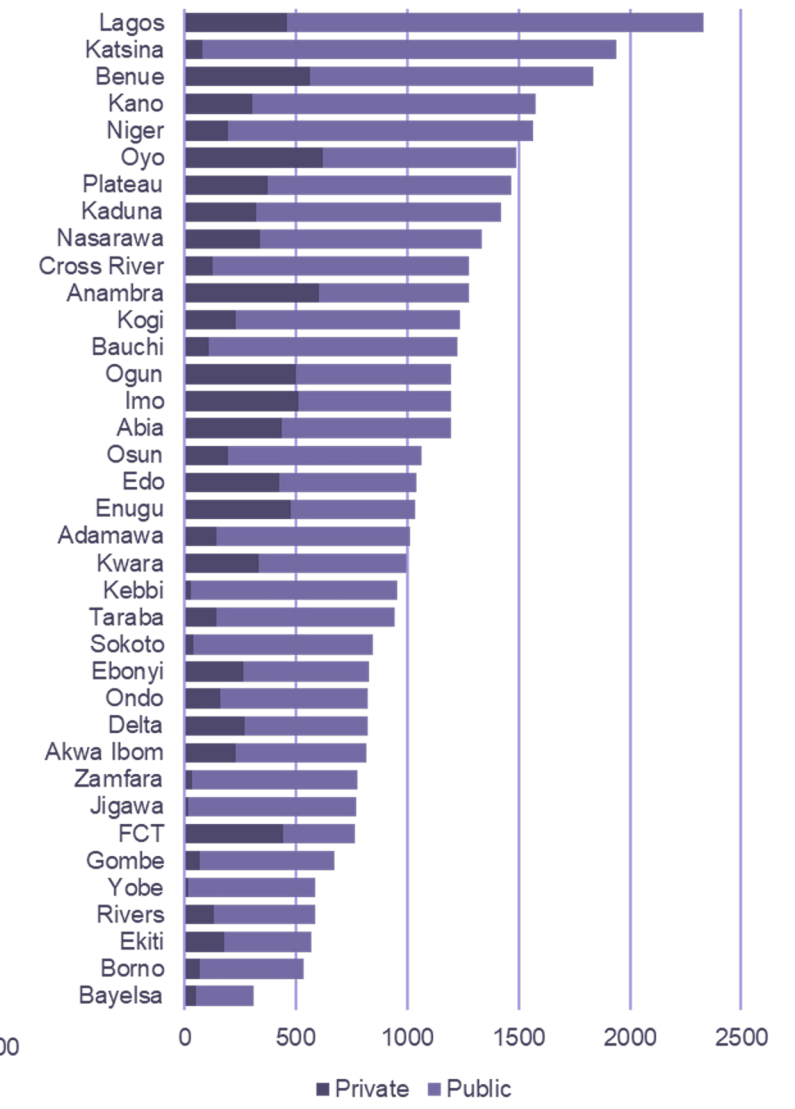
Significant inequities in health facility distribution across the country, with different levels of functionality

Source: Federal Ministry of Health 2019

Health facilities across care levels



Health facilities across public / private sector





## Health Facilities Electrification Datasets and Tools

S/No.	Year	Source, Link	Ownership	Accessibility	No. of HF	Information	Location	Electrification Status	Hours of electricity supply	Management category
1	2011-2014	Energydata.info <a href="#">(Link)</a>	Millennium Development Goals (MDGs), Columbia University	Open Source	34,139	Facility type categorized under various headings of tertiary, primary, secondary, other, no information	Provided GPS coordinates, LGA, WARD, STATE, HF NAME	Provided Grid electrification categorized as not known, true, false	Not provided	Not provided
2	2019?	Federal Ministry of Health, Nigeria <a href="#">(Link)</a>	Federal Ministry of Health, Health Facilities Registry	Open Source	40,017	Facilities classified according to state, level of care -primary, secondary, tertiary, ownership - public, private ownership, operational status and days, services and personnel	Provided GPS coordinates, LGA, WARD, STATE, HF NAME and CODE	Not provided	Not provided	Provided as Public, Private
3	2020-2021	REA	Energy Access Explorer, WRI/REA/ACE-TAF	Currently institutional, may be opensource once launched	30,000	Multi-criteria mapping tool with variables that can be selected according to visualization query	Provided GPS/STATE/LGA/Type	Provided Grid connected, yes, no	Not provided	Not provided
4	2021	Geocode database: WHO, Maina et al, OSM <a href="#">(Link)</a>	Clean Energy Access Tool <a href="#">(Link)</a> , EU-JRC	Open Source	36,428	Multi-criteria mapping tool with variables that can be selected according to visualization query including access to electricity, travel time to facility, population served, proximity to grid, solar PV LCOE cost, emissions reduction	Provided in query	Provided as Electricity Access, No Electricity Access	Not provided	Not provided

S/No.	Year	Source, Link	Ownership	Accessibility	No. of HF	Information	Location	Electrification Status	Hours of electricity supply	Management category
5	2021	Datasets from: <ul style="list-style-type: none"> <li>eHealth Africa on Nigeria's healthcare facilities (2018)</li> <li>Electricity demand in primary health centres (Schatz Energy Research Centre, 2021)</li> </ul>	SEforALL – Integrated Energy Planning tool (VP Office, MinPower, REA)	Institutional	46,500	Multi-criteria mapping tool with variables that can be selected according to visualization query for least cost electrification planning	Provided in query	Provided as electrified and unelectrified	Not provided	Not provided
6	Updated 2020	Humanitarian Data Exchange <a href="#">(Link)</a>	UNOCHA, WHO Health Facilities in Sub-Saharan Africa	Open source	20,807	Facilities type categorized by state according to different headings such as clinics, health post, health centers, primary health centers, basic health centers, comprehensive health centers, cottage hospitals, dispensary, federal medical center, district hospital, general hospitals	Provided	Not provided	Not provided	Partially provided
7	2021	Internal list based on survey	USAID IHP	Institutional	1,016	5 states list of audited sites for Bauchi, Kebbi, Sokoto, Ebonyi, FCT	Provided	Provided	Average provided	Provided
8	2019	Internal list based on survey	NPHCDA, REA PHC List	Institutional	1,000	PHC priority lists for electrification across 37 states	Provided GPS/LGA/WARD/STATE/HF NAME	Not provided	Not provided	Not provided
9	2018	FCT Surveys	Heinrich Böll Foundation	Open source	60	PHCs in FCT surveyed and energy audited		Provided	Provided	Provided?

## Multiple Sources of Health Facilities Datasets



### Data sources

Since 2011, multiple sources of data have enumerated geo-tagged locations of health facilities across Nigeria.



### Functionality

Functionality is not provided within datasets.



### Datasets

Some data sets include different combinations of public, private, formal and informal facilities – at different sub-national levels.



### Facility management

Ownership or management is not always specified.



### Facility types

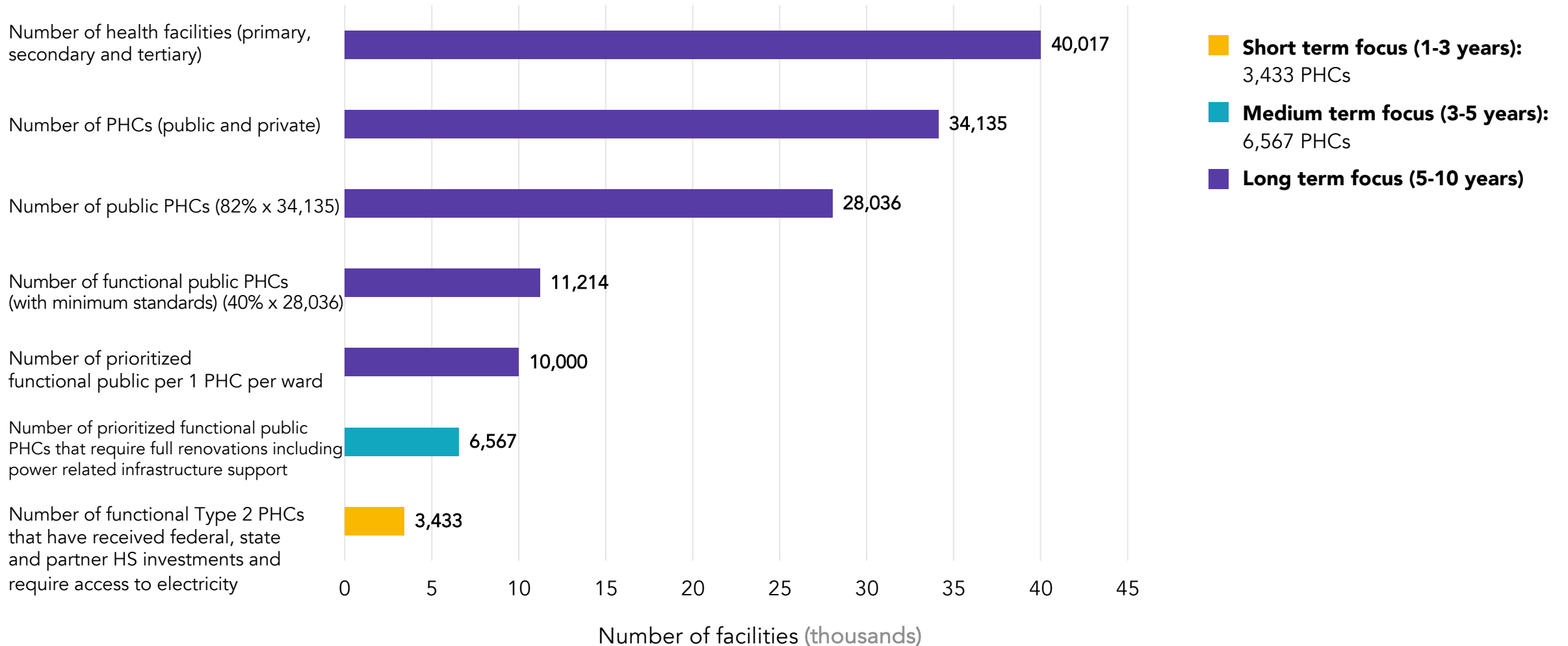
Terminology varies for classification of health facilities and is not always consistent with the NPHCDA classification.



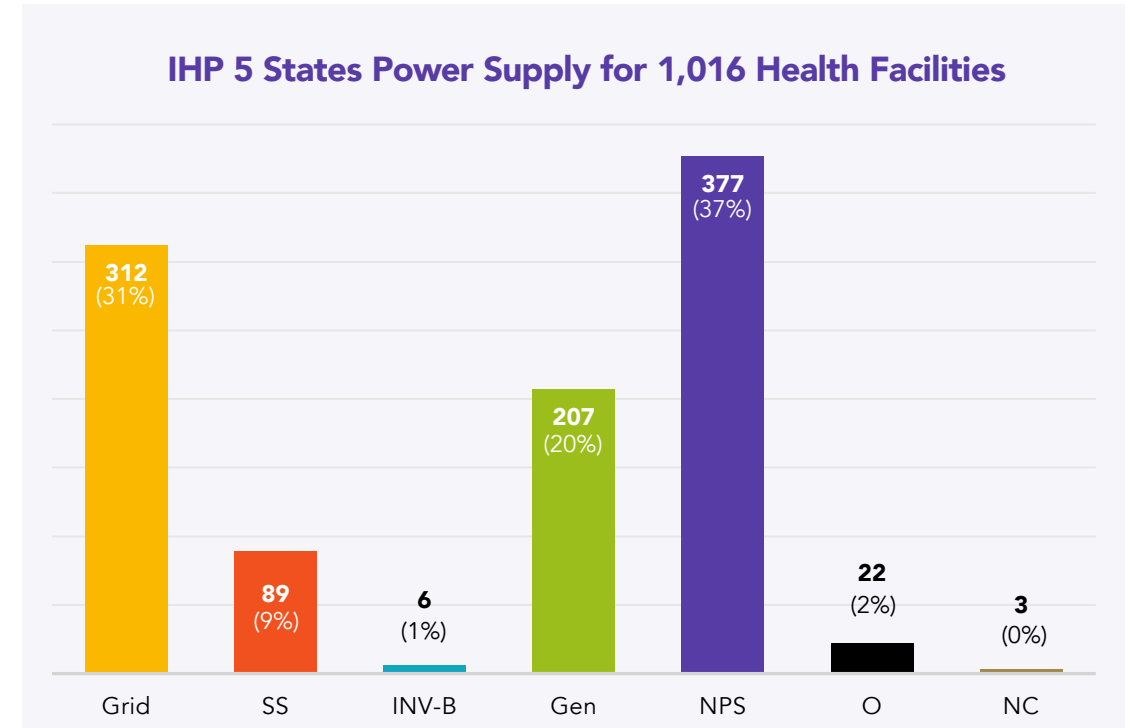
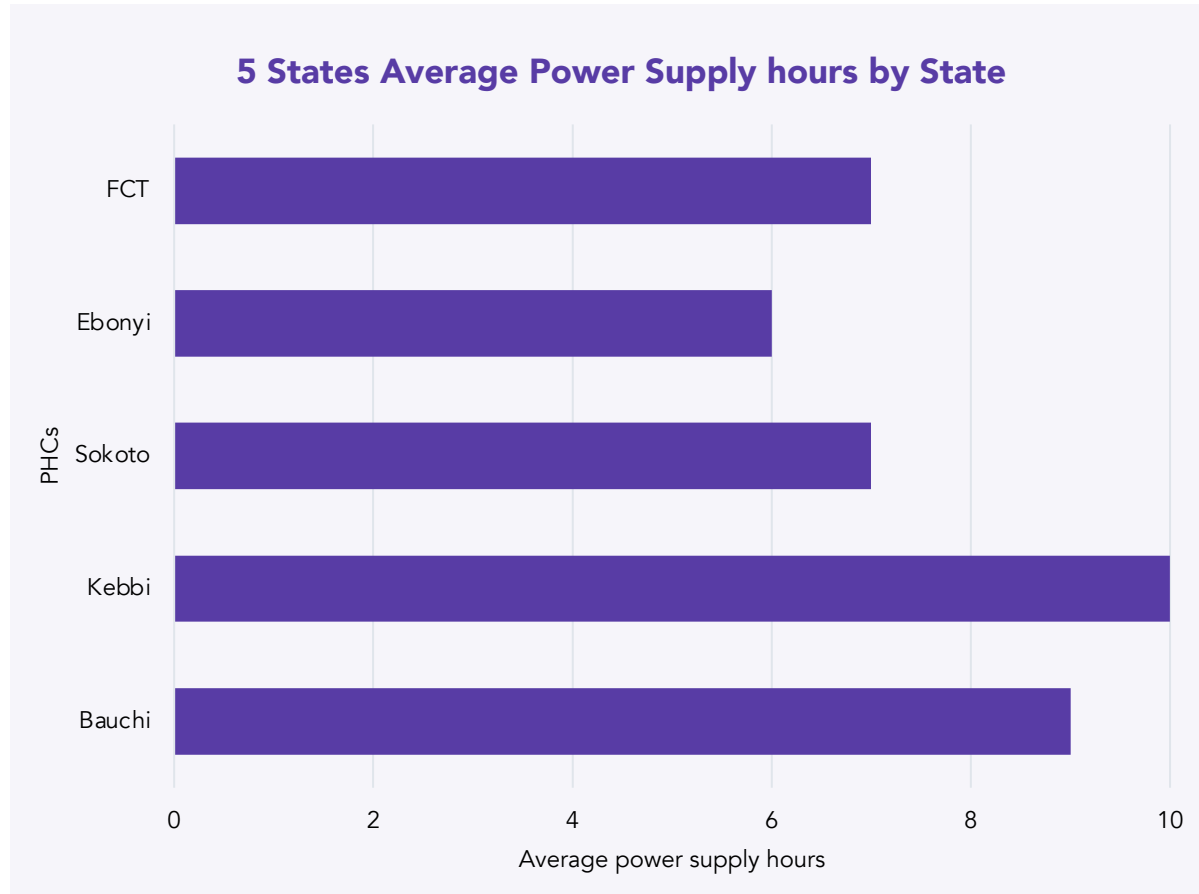
### Electrification status

Electrification status is either binary (yes/no) or not provided at all. Hours of electricity supply is mostly not provided. Energy need by category not always considered

## Sizing the problem: How many facilities require electrification?

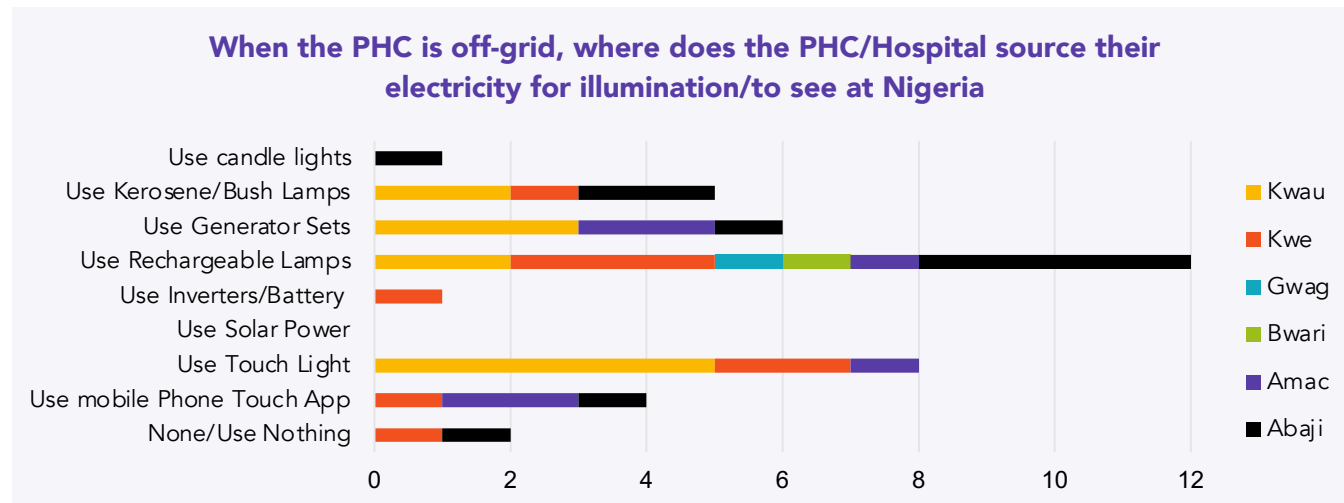
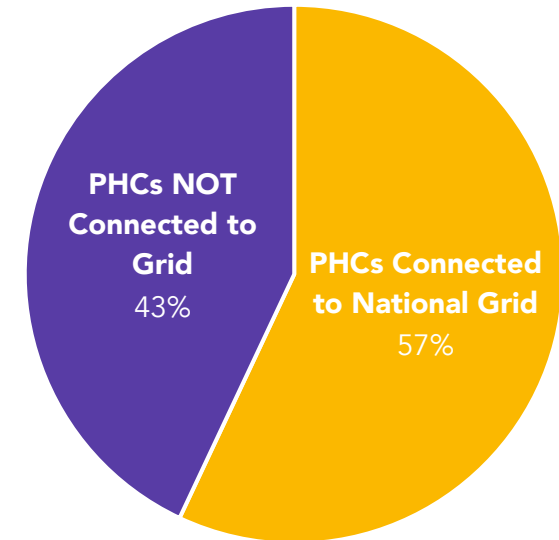
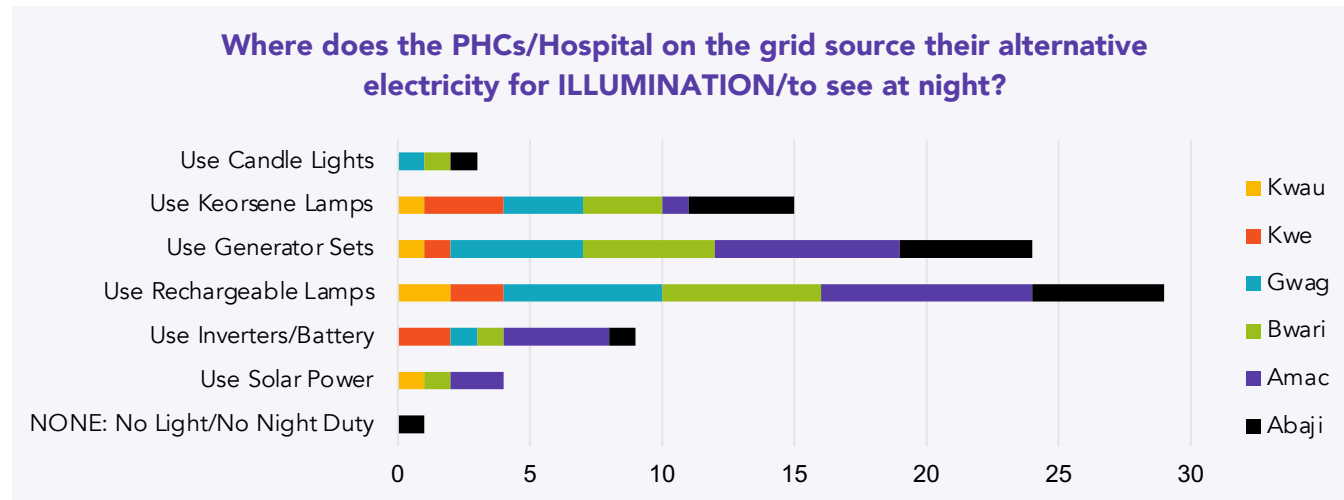


# Electrification Status Analysis: IHP 1016 Facilities Data (2021)



**NPS:** No Power Supply **SS:** Solar System **FG:** Fuel generator  
**INV-B:** Inverter Battery Backup **O:** Other **NC:** Not captured

# Electrification Status Analysis: HBF 60 Facilities in FCT (2018)

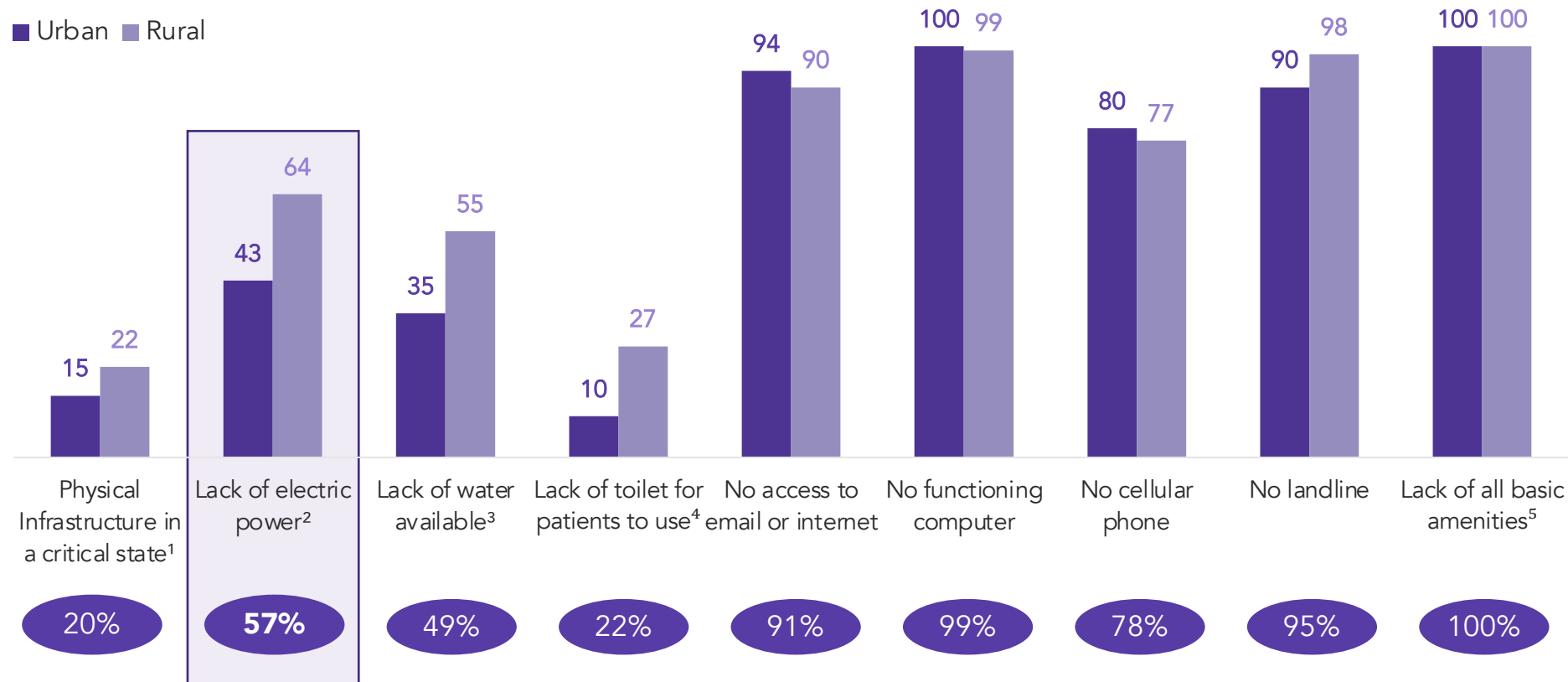


Heinrich Böll Foundation (HBF) field survey found that:

- **43%** of FCT health facilities sample have **no power supply from the grid.**
- Majority rely on kerosene lamps, rechargeable lamps, and generator sets as alternatives.
- **8 hours average power supply** from any combination of sources.

## Electrification Status Analysis: Kaduna State (2018)

In Kaduna for example, out of the 255 facilities assessed in Kaduna, most facilities lacked basic equipment and basic infrastructure.



1. Facilities requiring significant renovation to the building, roof, and fence. 2. Facility does not have electric power at any time. 3. Facility does not have water available at any time. 4. Toilet is not available for patients to use. 5. Based on WHO definition, basic amenities consist of the following items: power, improved water source, sanitation facilities, room with privacy, communication equipment, computer with internet/email, emergency transportation; analysis does not include availability of room with privacy.

**Source:** Kaduna Health Facility Assessment Report 2018

# Data insights: findings and recommendations

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## Situation

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- There are several HFE data sets developed by different health and energy stakeholders including Federal Ministry of Health, Health Facilities Registry, Energy Access Explorer, Clean Energy Access Tool, NPHCDA PHC database amongst others.
- There is no centralized robust health facility and electrification dataset.
- There is some variability in the information collected across various data sets. Some data sets include different combinations of public, private, formal and informal facilities across different levels of care.
- Various data collection templates and methodologies employed; from population-based surveys, self reporting systems to open-source dynamic databases.
- Increasing data coverage in terms of locations and coordinates of health facilities.

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## Findings

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### Size

- The Federal Ministry of Health estimates a total of 40,017 healthcare facilities in Nigeria - including public, private, formal and informal facilities – at different levels (primary, secondary and tertiary).
- The majority (85.3%) of health facilities in the country are primary healthcare centres; 28,036 of which are publicly owned with different levels of functionality.
- The private sector has a major role to play in service delivery as it already accounts for 44% of healthcare facilities in Nigeria.

### PHC functionality

- The consensus from interviews was that ~ 30 – 40% of public PHCs were considered functional.

### Electricity access

- ~ 40% of functional PHC facilities do not have access to electricity and ~80 – 83% and of PHCs are not powered using renewable sources.
- Although ~ 40% of health facilities have no access to electricity, majority of PHCs still have unreliable access to electricity from any combination of electricity sources.



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## Data gaps

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- Data on locations of functional PHCs is only available on request, but may be outdated (2019).
- Limited guidance on prioritization or ranking of facilities
- Limited data granularity in terms of:
  - Electrification need, status and hours of electricity supply
  - Source of electricity supply
  - Monthly/annual budget and spend on electricity
- PHC ownership or management structure is not always specified.
- Electrification status is either binary (yes/no) or not provided at all.
- Fragmented and inconsistent data access profiles across various data sets.

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## Recommendations

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- Build on existing tools and establish a central dynamic and standardized dataset that captures aforementioned data content and quality gaps including PHC functionality, electrification status, O&M regime and intervention health map.
- Technical assistance and programmatic support are required to bridge data and capacity gaps and update critical baseline inputs.
- Support may involve joint energy audits of PHCs (e.g. 1 PHC per ward facilities) and validation exercises.
- NPHCDA and REA could co-lead the coordination and planning of energy audits as well as data governance arrangements.
- The emerging Coalition for Sustainable Electrification of PHCs could function as the advisory body to foster multi-sectoral dialogue and data exchange on HFE.

## About SEforALL

Sustainable Energy for All (SEforALL) is an international organization that works in partnership with the United Nations and leaders in government, the private sector, financial institutions, civil society and philanthropies to drive faster action towards the achievement of Sustainable Development Goal 7 (SDG7) – access to affordable, reliable, sustainable and modern energy for all by 2030 – in line with the Paris Agreement on climate.

We work to ensure a clean energy transition that leaves no one behind and brings new opportunities for everyone to fulfil their potential.

## About Power Africa

Power Africa is a U.S. government-led initiative that addresses one of the most pressing challenges to sustainable economic growth and development in Sub-Saharan Africa: access to electrical power. Power Africa provides coordinated support from the U.S. public and private sectors to add cleaner, more efficient electricity generation capacity, which benefits residents and businesses across the continent.

In support of Power Africa, USTDA provides critical early-stage planning to spur new power generation, and transmission and distribution infrastructure. These activities support a range of energy development and deployment from power generation to grid modernization, which increase efficiency and improve access.



**Contact us to learn more**

✉ [PoweringHealthcare@seforall.org](mailto:PoweringHealthcare@seforall.org)

