Powering Healthcare
Setting the Scene

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Powering Healthcare – table of contents

About SEforALL

SDG7

Powering Healthcare
An international organization working with leaders in government, the private sector, philanthropy and civil society to drive faster action toward achievement of...

**Sustainable Development Goal 7 (SDG7)** - universal energy access, renewables and energy efficiency by 2030, and

**The Paris Agreement** - reducing greenhouse gas emissions to limit climate warming to well below 2° Celsius (and striving for 1.5° Celsius)
There are ~789 million people without electricity access; ~2.8 billion people without access to clean cooking; and ~1 billion at high risk due to lack of access to cooling.

Number of unelectrified people, millions, 2018

- Africa: 565
- Asia: 209
- Rest of the World: 15
- Total: 789

Number of people without access to clean fuels and technologies for cooking, millions, 2018

- Asia: 1,776
- Africa: 904
- Rest of the World: 176
- Total: 2,849

Number of people at high risk due to lack of access to cooling, millions, 2019

- Asia: 593
- Africa: 359
- Rest of the World: 62
- Total: 1,014

SOURCE: ESMAP, Chilling Prospects: Tracking Sustainable Cooling for All, 2019 (SEforALL)
A substantial portion of the population will need to vaccinated at speed for a country to form herd immunity

Even at 20 °C, many service points, such as hospitals, clinics and pharmacies, will not have the freezers required for storage.

Upfront costs of equipment and installation, lack of expertise to maintain these systems, perceived technology risks, and poor stakeholder incentives to pursue efficiency make it hard for developing countries to invest in cold chain equipment.

<table>
<thead>
<tr>
<th>Vaccine developer/manufacturer</th>
<th>Vaccine platform</th>
<th>Number of doses</th>
<th>Timing of doses</th>
<th>Phase</th>
<th>Anticipated temperature requirement for shipment and long-term storage</th>
<th>Anticipated duration of storage possible at 2-8°C</th>
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<tbody>
<tr>
<td>BionTech/Fosun Pharma/Pfizer</td>
<td>RNA</td>
<td>0, 28 days</td>
<td></td>
<td>-70°C</td>
<td>5 days*</td>
<td></td>
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<td>Moderna/NIAID</td>
<td>RNA</td>
<td>0, 28 days</td>
<td></td>
<td>-20 °C</td>
<td>10 days**</td>
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<td>University of Oxford/AstraZeneca</td>
<td>Non-replicating viral vector</td>
<td>-</td>
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<td>2-8 °C</td>
<td>N/A</td>
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<td>Protein Subunit</td>
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</table>
Powering Healthcare provides an opportunity to advance all three SDG7 targets

**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all

**Target 7.1:** By 2030, ensure universal access to affordable, reliable and modern energy services

**Target 7.2:** By 2030, increase substantially the share of renewable energy in the global energy mix

**Target 7.3:** By 2030, double the global rate of improvement in energy efficiency

- Electrifying health facilities contributes to universal energy access
- Powering Healthcare serves as a good template for electrifying other institutions (e.g. schools)
- Increased deployment of renewable energy solutions, both for off-grid health facilities and for generator-reliant (or weak-grid reliant) facilities
- Spur innovation in the field of energy-efficient medical appliances
Access to electricity underpins nearly every aspect of a well-functioning health facility, making it vital to delivering quality health care and emergency services...
...yet, too often health care looks like this
The Problem

Data on health facility electrification is sparse, but what data does exist points to serious gaps in access and reliability.

59% health facilities in low and middle-income countries lack reliable power

Source: International Journal of Hygiene and Environmental Health (2018)

75% health facilities in Sub-Saharan Africa lack reliable power (11 country sample)

Source: Global Health Science Practice (2013)

50% primary health centers in India lack power or reliable power


70% equipment breaks down, with voltage surges a leading cause

Source: Annual Review of Biomedical Engineering (2007)
A closer look shows disparities across countries and the fact that the grid power isn’t the ‘silver bullet’.
A range of distributed renewable energy solutions exist to power health facilities.

- **Tier 1**: Portable Solutions
- **Tier 2**: Solar Kiosks
- **Tier 3**: Stand-alone Solutions
- **Tier 4**: Facility-wide ‘Micro-grids’
- **Tier 5**: Mini-grids
Key barriers to rapid deployment of energy solutions to health facilities

**DATA**
- Where are the health facilities located?
- Which facilities are priority COVID-19 facilities?

**ENERGY DEMAND**
- Which electricity-dependent (medical) appliances are needed and recommended?
- Which appliances are currently available?

**SYSTEM DESIGN**
- How much power is needed, at what point of the day?
- Which energy technologies are appropriate?

**FINANCING**
- How much CapEx and OpEx is required to address the power gap in the health sector?
- How quickly can funds be disbursed?

**SECTOR CAPACITY**
- What is the current capacity of the energy access sector to respond?
- How can public/private actors coordinate and collaborate?

**SUSTAINABILITY**
- What is the most appropriate delivery/business model to deploy energy solutions rapidly, at scale, and in a sustainable way?
Powering Healthcare: sample activities

**DATA & MAPPING**
- Intervention Heatmap: mapping ongoing & planned interventions
- Impact data factsheet
- Global Assessment of Health Facility Electrification (led by WHO)

**ADVOCACY & COMMS**
- Resource hub (website)
- Global advocacy campaigns

**COUNTRY ADVISORY**
- Technical Assistance to Govt counterparts on:
  - Country-level coordination
  - ‘Powering Healthcare roadmaps’
  - COVID-19 vaccine roll-out scenario analysis