



**UNHCR**  
The UN Refugee Agency

# Electrification Factsheet

## Azraq Camp - Jordan

### September 2018

UNHCR and the IKEA Foundation have created the first refugee camp in the world powered by renewable energy. A medium- and low-voltage power network funded by the Saudi Fund for Development connected the IKEA Foundation Solar Plant to refugee shelters, formal and informal businesses, offices and utilities, providing year-round electricity in the camp.

#### Electricity Access



**4,903** shelters  
connected to the grid



Average of **66** kWh  
per month per  
household or  
**2.2** kWh per day



**16**  
hours of electricity  
provided daily to  
**shelters**



**22**  
organizations and  
operational facilities  
supplied with electricity

#### Solar Plants Environmental Impacts



**5,500** MWh's of  
clean energy  
produced every year



**4,500** tons per year  
reduction of CO2



**876** US passenger car  
emissions for a year



The burning of **2,031**  
metric tons of coal

#### Azraq Electrical Network Physical Facts

The Solar Plant uses **7,788** solar PV panels with a lifespan of 25 years. This is the equivalent size of **5** football fields

**19** km's of medium voltage cables and **2,700** low voltage poles connect shelters and operational facilities to the local electrical grid.

#### Solar Plants Cost Savings



**\$2M**

million of annual reduction  
in electricity bills  
The construction cost of  
approximately US\$ 1.4/Watt



Anticipated return  
on investment  
within **3 years**  
after the completion  
of the project

#### Improved Lighting



**16,950**

**solar lanterns**  
distributed to households



**472**

**solar street lights**  
installed in the camp



**424**

**LED street lights**  
installed in the camp



**10,006**

**Energy Efficient**  
Lightbulbs (LED) distributed

#### Livelihood Opportunities



**50**

refugees  
employed in the solar  
plant construction



**120**

refugees  
employed in the construction  
of the electrical network



**200**

shops  
connected in the  
2 marketplaces



**10**

trained refugee  
'electricians'  
support UNHCR electrical  
activities in the camp

The Azraq Camp Solar Project is to be implemented over three concurrent phases. By mid-2019 all three phases of PV solar infrastructure will be completed and connections to village 2 and 5 finalized. Overall Azraq Camp will be approximately 70% powered by renewable energy.

#### Phase 1 | 2 MWp on grid

Completed in June 2017

Connected to Villages 3 and 6



Covers up to 35-40% of camp's electrical needs including:

- 4,903 total shelters
- + 22 organizations & operational facilities
- + 2 marketplaces

#### Phase 2 | 2 MWp + 1.5 MWp on grid

To be completed by the end of 2018

Connected to Villages 2, 3, 5 and 6

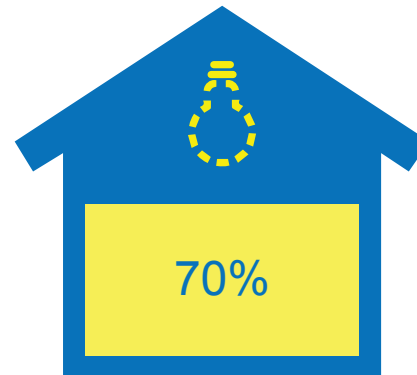


Will cover up to 55% of camp's electrical needs including:

- Up to 10,470 total shelters
- + 22 organizations & operational facilities
- + 4 marketplaces

#### Phase 3 | 3.5 MWp on grid + additional 1.5 MWp off grid

To be completed in mid-2019



Connected to Villages 2, 3, 5 and 6



Will cover up to 70% of camp's electrical needs including:

- Up to 10,470 total shelters
- + 22 organizations & operational facilities
- + 4 marketplaces

#### How the 2.2 kWh's in Azraq compares to average daily household consumption around the world:

Source: World Energy Council 2014

