

# Hydrogen from solar power in Chililabombwe, Zambia



Norconsult has evaluated the possibility of using hydrogen produced by solar energy and electrolysis to replace the current diesel generators in Chililabombwe, Zambia. Chililabombwe is a small town in the copper belt of northern Zambia.

## Assignment

The energy demand in the copper mines in Chililabombwe reaches its peak in the hours after the sun set. An emergency power system with diesel generators is used to cover the peak load of 50 MWh. This is very expensive, and it is desired to replace the diesel generators with a cheaper alternative. Norconsult has investigated the possibility of using solar power to produce and store hydrogen versus solar power to store energy in lithium batteries.

## Solution

Due to the location and climatic conditions, solar energy is considered the best alternative as energy source. A feasibility study of hydrogen production by electrolysis and fuel cells is compared to the use of high-efficient lithium batteries.

## Result

As the need for additional power is limited to a few hours per day, Norconsult's conclusion is that hydrogen production, storage and use of fuel cells is not a cost-efficient solution compared to the use of lithium batteries.

► **Disciplines and services**  
Hydrogen, Solar power

**Time span**  
2018