

# Electrification Brings a Brighter Future

## The challenge

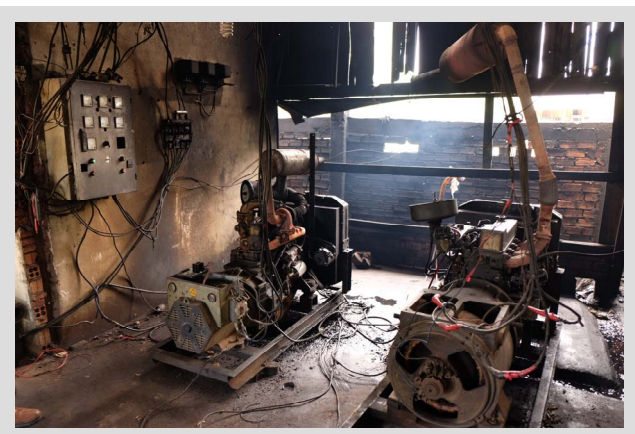
With less than 30 percent of connected households, Cambodia has currently one of the lowest electrification rates in South-East Asia. And the biggest share of this electrification network concentrates in the capital Phnom Penh and further urban areas throughout the country. For most communities and villages in Cambodia electricity is hence either very limited and extremely costly or not available at all. While the grid price is already expensive with 0.25 USD, off-grid tariffs by rural providers (Rural Electricity Enterprises/ REE) can be as high as 0.70 USD/kWh (compared to an average of around 0.15 USD/kWh in Thailand). The reason for such high tariffs is that REE operate old and small diesel generators which also pollute the environment. Such tariffs are prohibitively expensive for many rural households and small businesses and hinder rural economic development. High tariffs make local production more costly, less competitive and keep potential investors away. Against this background the Cambodian Government aims to have 70 percent of the country connected to the national grid by 2030.

## Our approach

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), KfW is supporting the Royal Government of Cambodia with more than 22 million EUR to upgrade and expand the national electricity grid.

Programme Name	Rural Electrification and Power Transmission Programme
Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Programme Executing Agency	Ministry of Mines and Energy (MME) & Electricité du Cambodge (EdC)
Target Group / Output	Rural population in the catchment area of infrastructure investments / Expansion and improvements of the National Power Grid
Project Region	Kampot, Takeo, Kampong Speu
Duration	2007 - 2015
Financial Scope	30 million EUR, of this 22.2 million EUR funded by Germany and 7.8 million EUR Cambodian counterpart funds

The programme is part of Cambodia's power sector development under the Rural Electrification Programme of the Government. We focus our investment on the grid extension in the provinces of Kampot, Takeo and Kampong Speu. Cambodia's power grid operator Electricité du Cambodge (EdC) is in charge of implementation. The programme includes the construction of both the substation in Kampot as well as a 75 km high voltage transmission line from Kampot to the existing grid in Takeo. In the second step, 650 km of new medium voltage lines and corresponding transformer stations are constructed to ensure that electricity from the high-voltage grid reaches people across the area.



*An small-scale and off-grid power plant, which was operated with old, inefficient and polluting diesel generators (left) is replaced with a new transformer (right) to connect a village with the national grid. Kampot Province, 2014*



## Benefits

The construction of the high-voltage line between Kam-pot and Takeo and the further extension between Kam-pot and Sihanoukville allows to ship electricity in all di-rection. With the construction and expansion of the Kampot power substation the local hydropower plant Kam Chay could be directly connected to the grid. It can now contribute to local and regional power supply.

Through the extension of the mid-voltage network more than 5,000 households but also social service providers such as schools and health centers will be directly con-nected and benefit from stable electricity supply. With the new connections to the grid households and social service providers will reduce their costs for electricity significantly. If a household uses 10 kWh per month, the monthly electricity “bill” could drop from 7 USD to 2.5 USD. For poor people who live with only 1 USD/day, this is noticeable.

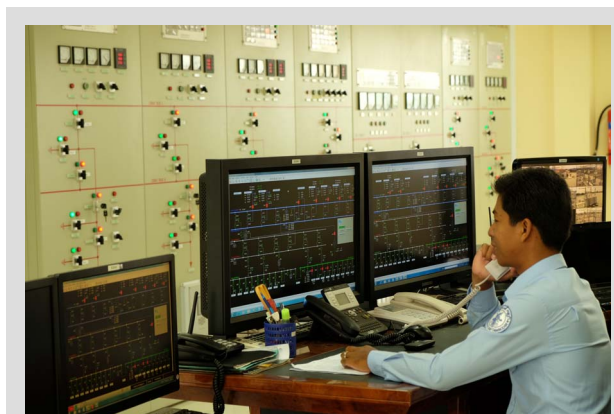
Low costs, equitable and stable access will be crucial steps towards the electricity sector contributing to bal-anced social and economic growth. This broadens the basis for the development of more small- and medium-sized enterprises. And it lowers the daily burden for families in the house where there is now electricity to pump water from a well or light in the evening. There is a close correlation between lighting and learning for school. With the lights turned on, students can study longer, improving their grades and interest in school. By accessing the national power grid, less people depend on diesel-generators and batteries. This decreases car-bon emissions and reduces environmental impact to climate change.

## Success story

We agreed with the Cambodian Government that this German grant will be channeled to EdC as a loan as this investment will broaden their income basis. EdC is al-

ready repaying this loan which proves the programme’s economic sustainability. All sides agreed now that these repaid funds will be used to co-finance the Government programme “Power to the Poor (P2P): paying fee subsi-dies to connect poor households to the national power grid or where needed providing solar home systems.

Our partners, EdC and the Ministry of Mines and En-ergy, hold high competence and ownership, which con-tribute to the thriving success of this electrification programme. The programme also includes international engineering support and technology transfer to EdC, which strengthens their competences even further.



*Central control room (above) and high-voltage outdoor trans-formers (bottom) at EdC’s new power substation in Kampot province, 2014*



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On behalf of German Federal Ministry for Economic Cooperation and Development (BMZ)