

# SWITCH to Solar

SWITCH to Solar is designed to accelerate a nationwide uptake of solar technology for productive uses across Cambodia's agri-fishery value chains. The project works with Khmer solar technology providers, start-ups, financial institutions and other market actors to make solar-based solutions more accessible and economically attractive to rural farmers. Using a blend of market-based approaches the project aims to ameliorate the environmental impact of agri-businesses by greening their energy consumption while improving productivity and profitability.

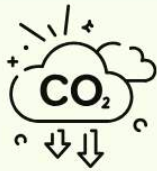
**Project Timeline: 2020 - 2024**

**Budget: €2.56 Million**



## Key Project Indicators

**3,915**



**tons of CO2 emissions avoided**

**20%**



**Reduction in operational expenses of agri-businesses**

**120**



**New green jobs created**

## Barriers & Opportunities for Solar Market in Cambodia<sup>1</sup>

### Barriers



**56% of farmers find switching to solar expensive** with insufficient after-sale support and lack of long-term warranty.



Limited access to low-value (\$1m<) **impact investment opportunities.**

Lack of affordable **loan financing options** and general **high indebtedness** of the local population.



**Regulatory barriers** for synchronizing solar systems with the national grid.



### Opportunities



Average price of Cambodia's electricity in rural areas is between **\$0.5-0.6/kWh (3-5 times higher than in Phnom Penh).**



**Average sunshine duration 6-9 hours a day** with an approximate annual yield of 1,600 kWh/kWp (4.2kWh/kWp PVOUT)<sup>2</sup> around the Tonle Sap lake (one of the highest in the world).

Independent small and medium-sized farmers pay **\$700-900/year** for operating and maintaining fuel-/grid-based water pumping systems.



Frequent **power outages** affect agricultural productivity.



<sup>1</sup> Sources: PIN research, World Bank, GIZ, IRENA

<sup>2</sup> Photovoltaic power output as a measure of solar power potential

## Achievements to date

**10** supported solar technology providers and start up sold products worth over **\$2,000,000** avoiding **2,152** tons of CO2 emissions.

Successfully mobilised a total financing investment of over **1.2 millions** for the supported solar technology providers and start-ups, with a significant portion of over **50%** being contributed by external investors.

Over **84** new green jobs and **42** green internship were created

More than **90%** of the agri-business reduced by 20% their operational expenses after have purchased a solar technology.

## Two technologies with the most impact

### Solar Water Pump System

**Location:** Pursat province

**Value chain:** Rice

**End users:** 564 smallholder farmers

**System capacity:** 125 kWh covering 537ha of rice fields

**Total investment costs:** \$225,000

**SWITCH to Solar support:** \$0

**Cost savings per year:** \$32,850 (diesel & maintenance)

**Simple payback period:** 6 years

**CO2 emissions avoided:** 75 tCO2 per year



125kW capacity solar water pumping systems, installed by Khmer company SOGE provides all-year supply of water to 564 smallholder rice farmers in Pursat province.



### Solar Dryer Dome

**Location:** Siem Reap province

**Value chain:** Post-harvest fishery

**End user:** Individual dried fish producer

**System kWh capacity:** 266 kWh

**Total investment costs:** \$15,000

**SWITCH to Solar support:** \$12,485

**Extra earnings:** \$2,876 per month

**Simple payback period:** 12-18 months

**CO2 emissions avoided:** 1 tCO2 per year



Solar Dryer Dome, developed by Khmer start-up Harvest the Sun, offers post-harvest fish processors an efficient, clean and economically attractive way to dry fish in bulk.

## New Solar Applications Under Development



Solar Powered Cold Storage from Covestro Inclusive Business.

Mobile solar cold room from EC REFRIGERATION Co. Ltd. And EGE Cambodia Energy solutions.

