



SOLAR ENERGY



## *ABOUT DK RENEWABLE ENERGY*

Originating from Denmark – one of the world’s leading countries in clean energy, *DK Engineering Ltd.* has been involved in renewable energy development for over 10 years. In South East Asia we offer development, design and full EPC capabilities for wind, solar and bio-waste energy projects alongside trusted partners



## *WHAT WE DO*

At DK Renewable Energy we:

- Consultancy from project planning through to operation
- Pre-feasibility and feasibility studies
- LCOE calculations, technical design, bidding documents and evaluation
- Project construction, management and consultancy
- EPC BOP construction and management with selected partners



## *WHY CHOOSE DKE*

- We take an honest and responsive approach to our work
- We work collaboratively with clients
- We provide on-going project support service



## *SOLAR ENERGY*

Solar power has been the fastest-growing source of new energy world wide, leading experts to hail a “ new era”. This energy, in the form of heat and light, supports all life on Earth, drives the Earth’s climate and weather and is predominately responsible for the class of resources collectively known as renewable energy.

At DKE, we invest heavily in this sunlight utilizing technology, and get them ready to be put into practice in different parts of the world



## *OUR SOLAR ENGINEER SERVICES*

- Site development feasibility studies
- Array plan design and optimization
- Electrical one line diagram
- Interconnection and string design
- Technical evaluation
- Energy modeling and consulting
- Foundation design
- Geotechnical consultants
- Racking system structural review
- Budget estimation
- Bidding consultant
- Grid connection and PPA support



## *PV ROOFTOP FEASIBILITY STUDY, CONSULTANCY*

The main concern when an investor wants to build a PV rooftop is how long time before they will get their investment return. DKE experts and experience will help customers not only answer that question but also harness solar energy effectively according to their rooftop properties to shorten the payback time

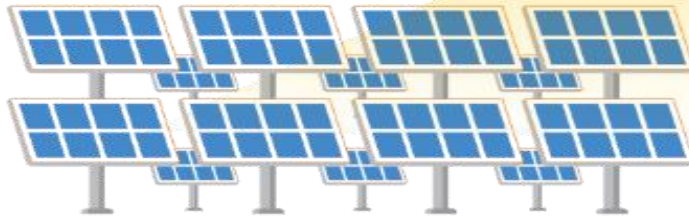
## SOLAR POWER POTENTIAL IN VIETNAM



- Average solar irradiation **3-5 kWh/m<sup>2</sup>/day**
- **2,500-3,000 hours** Of sunshine each year on average
- Installation areas, locations **Coast, plains, mountains, rooftops...**



### SOLAR FARMS (as of June 10, 2018)



**100 projects**

Added to provincial, national power development plans

**58 projects**

With basic designs approved

**9 projects**

With power purchasing contracts signed



### ROOFTOP PROJECTS (as of the end of July 2018)



**748 projects**

**11.55 MWp**  
Total capacity

**> 100 mln VND**

6 panels (used for 20-25 years)

Saving about 1.5 million VND of power cost each month

People save

**50%**  
of power used each month



**1,770 MW**  
Post-2020 registered capacity



Source: Ministry of Industry and Trade, VNA

© **TTXVN**

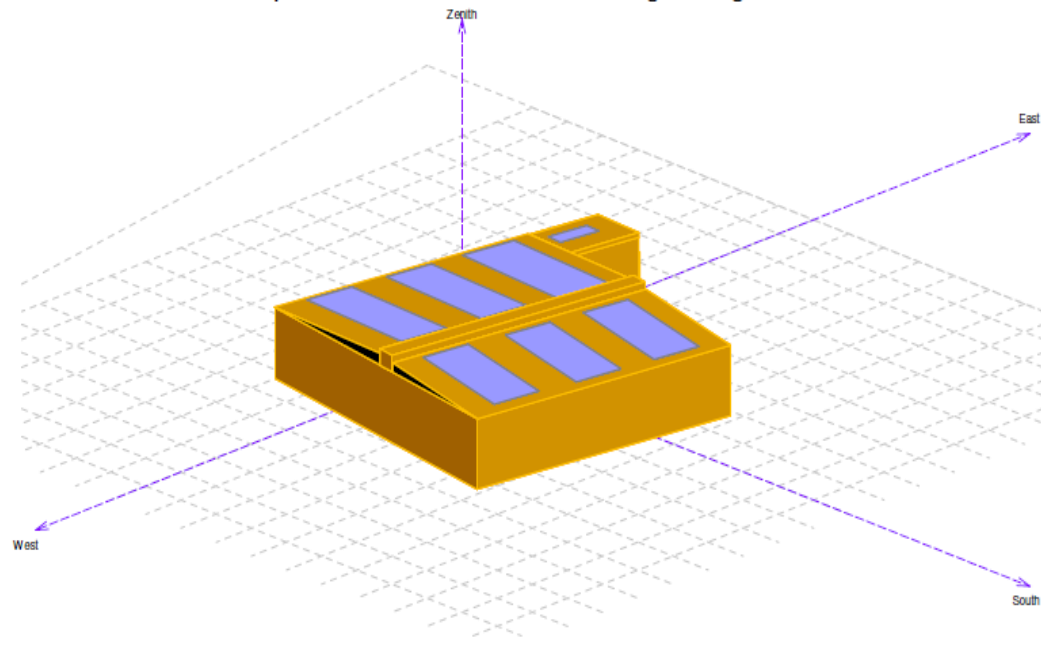




## *PV ROOFTOP DESIGN, PROCUREMENT, CONSTRUCTION AND T&C*

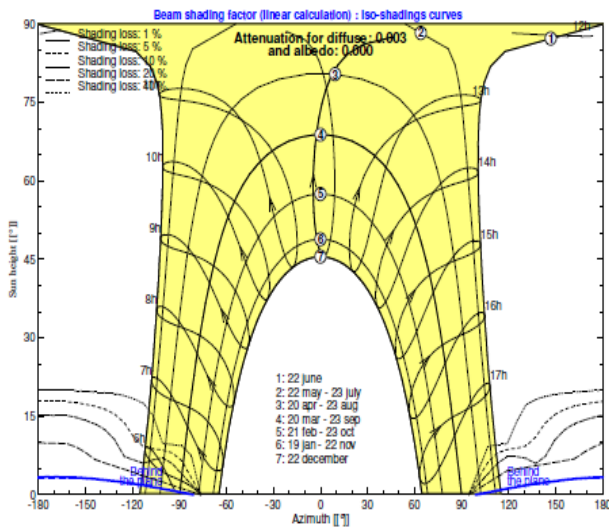
DKE has adapted PVsyst, a commonly used professional modeling tool to design, optimize the Azimuth, Tilt and simulate shading scene. Helping customer to see what PV panel should be used effectively and economically, how the string is harnessed and support structure is configured. Our experienced construction team will deliver the project on time with high quality and managed EHS.

### Perspective of the PV-field and surrounding shading scene



### Iso-shadings diagram

COLD SWIRE - Legal Time





## *PV FARM ENGINEERING, CONSULTANCY*

DKE is nationally recognized for solar engineering service, proud to have supported delivery of several MW of solar projects globally.

We have experience and a great deal of passion for renewable energy solutions to our work, focusing on engineering for utility scale and commercial/industrial scale solar customers



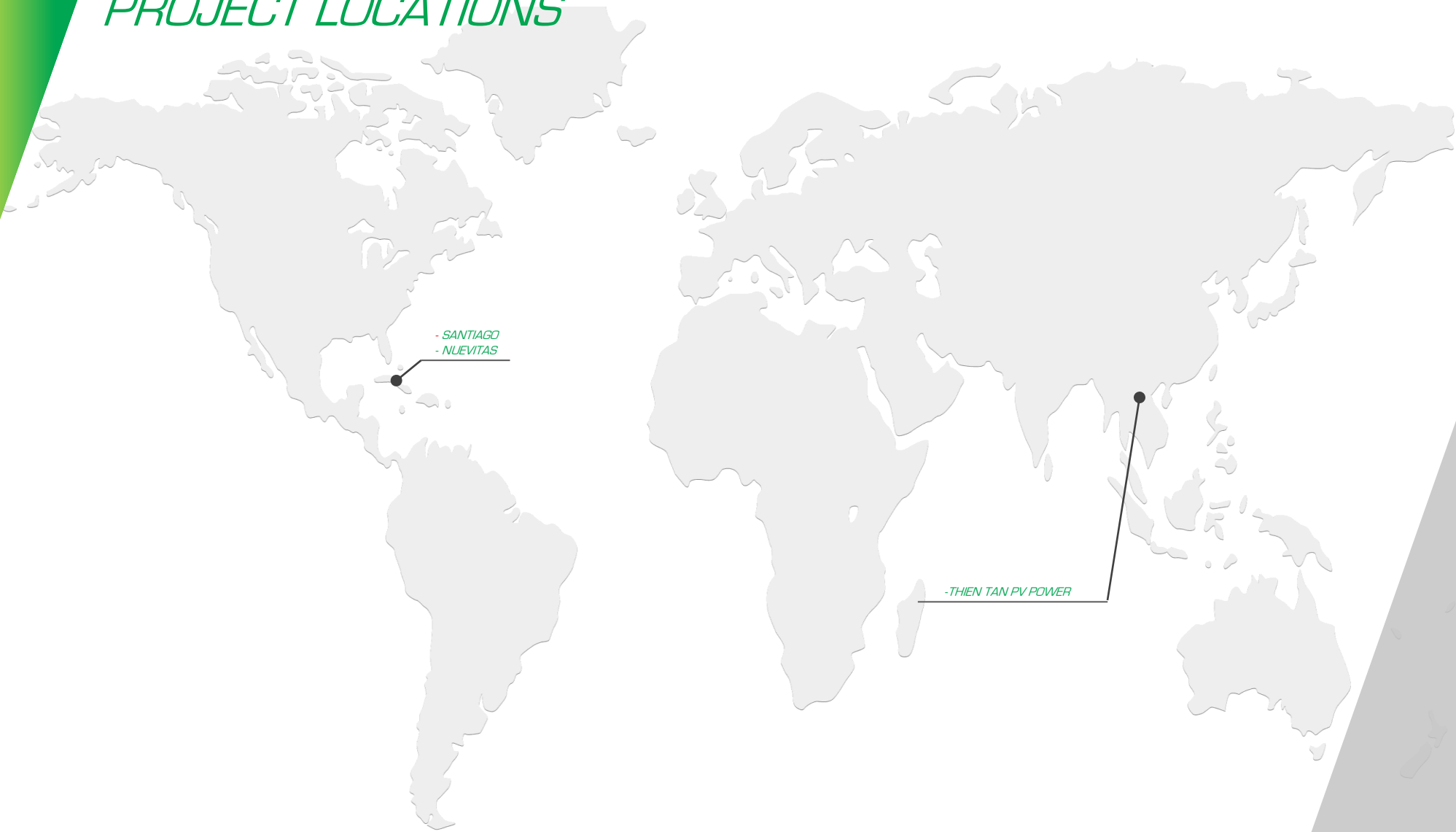


*CLIENTS*

**FLSMIDTH**

**FTCSOLAR**

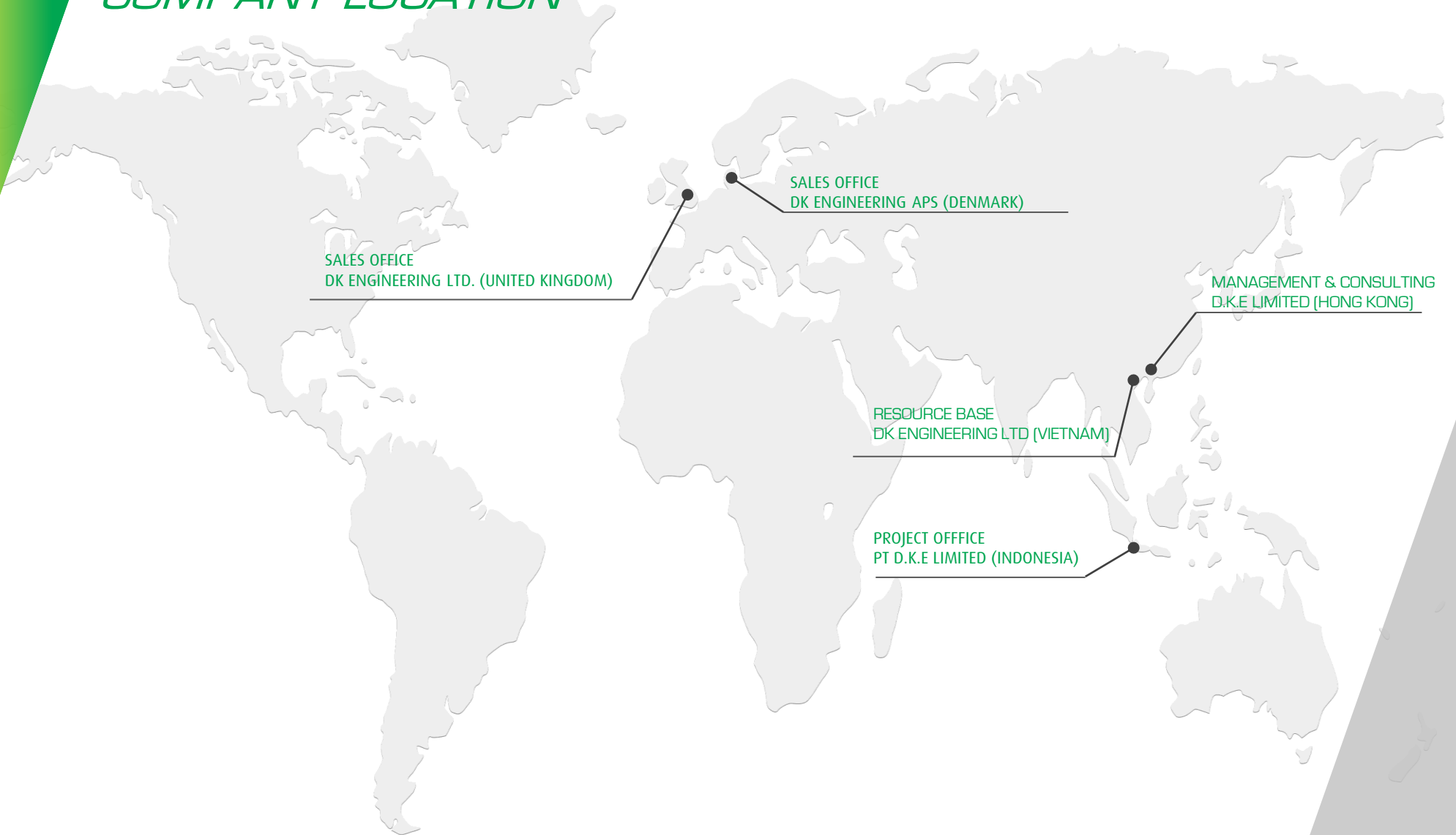
# PROJECT LOCATIONS



- SANTIAGO  
- NUEVITAS

- THIEN TAN PV POWER

# COMPANY LOCATION



SALES OFFICE  
DK ENGINEERING LTD. (UNITED KINGDOM)

SALES OFFICE  
DK ENGINEERING APS (DENMARK)

RESOURCE BASE  
DK ENGINEERING LTD (VIETNAM)

PROJECT OFFICE  
PT D.K.E LIMITED (INDONESIA)

MANAGEMENT & CONSULTING  
D.K.E LIMITED (HONG KONG)

# THANK YOU

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