# KEE HING CHEUNG KEE CO., LTD. DLFTZ CHANG HING KEE INT'L INDUSTRY & TRADE CO., LTD.



# **KHCK Solar Solutions**

Prepared By KHCK Family



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### Part 1. Small Solar Home System

#### Introduction

Experience has proven that SHS can supply electricity to rural areas of developing countries. As of April 2009, the Global Environment Facility (GEF) had over millions SHS projects in various countries such as India, Indonesia, Philippines, Mongolia, China, Sri Lanka and most African countries.

We design, integrate and deploy SHS worldwide that is highly modular and upgradeable. We aim to maximize investor returns while adopting socially, economically, and environmentally responsible strategies.

KHCK has been in renewable field for many years and accumulated abundant experience and good reputation.

#### Considerations of KHCK SHS

- 1. Easy to install & un-install
- 2. Plug and play
- 3. Economic in cost
- 4. Safe & Reliable & maintenance free
- 5. Battery storage
- 6. Optional output voltage & diverse interfaces

### **Characteristics:**

- Can provide electricity for 6-8hours/day
- Can guarantee (electricity for) two consecutive rainy/cloudy days
- Output voltage is customized DC9/12V
- Protection: Battery Charger Protection, Battery Low Voltage Protection, Overload Short Circuit Protection, Thermal Protection, Fault Indication Function



### Main equipment list

ltem	Main Descriptions	Qty.
Solar panel	50Wp/12V	1
Mounting structure	Roof, pole and ground mounted	1
Controller	12V/6A	1
Battery	12V/50AH lead acid battery	1
Controller box	Controller & battery inside	1
Cable and wire	Set	1

Note: modified inverter is optional

#### **Characteristics:**

- Can provide electricity for 6-8hours/day
- Can guarantee (electricity for) two consecutive rainy/cloudy days
- Output voltage is customized, DC12V, AC110/220/230V
- Protection: Battery Charger Protection, Battery Low Voltage Protection, Overload Short Circuit Protection, Thermal Protection, Fault Indication Function

# Recommended loads 1pcs 11W CFL, 1pcs 1.5W Radio 1pcs 25W smaller Fan Cost: USD580.00

#### Main equipment list

ltem	Main Descriptions	Qty.
Solar panel	100Wp/12V	1
Mounting structure	Roof, pole and ground mounted	1
Controller	12V/10A	1
Battery	12V/100AH lead acid battery	1
Controller box	Controller & battery inside	1
Cable and wire	Set	1

Note: modified inverter is optional

#### **Characteristics:**

- Can provide electricity for 6-8hours/day
- Can guarantee (electricity for) two consecutive rainy/cloudy days
- Output voltage is customized, DC12V, AC110/220/230V
- Protection: Battery Charger Protection, Battery Low Voltage Protection, Overload Short Circuit Protection, Thermal Protection, Fault Indication Function

#### **Recommended loads**

3pcs 11W CFL,

1pcs 1.5W Radio

1pcs 25W smaller Fan

Cost: USD840.00



### Main equipment list

Item	Main Descriptions	Qty.
Solar panel	75Wp/12V	1
Mounting structure	Roof, pole and ground mounted	1
Controller	12V/15A	1
Battery	12V/150AH lead acid battery	1
Controller box	Controller & battery inside	1
Cable and wire	Set	1

Note: modified inverter is optional

#### **Characteristics:**

- Can provide electricity for 6-8hours/day
- Can guarantee (electricity for) two consecutive rainy/cloudy days
- Output voltage is customized, DC12V, AC110/220/230V
- Protection: Battery Charger Protection, Battery Low Voltage Protection, Overload Short Circuit Protection, Thermal Protection, Fault Indication Function



### Cost: USD1, 100.00

#### Main equipment list

Item	Main Descriptions	Qty.
Solar panel	100Wp/12V	2
Mounting structure	Roof, pole and ground mounted	1
Controller	12V/20A	1
Battery	12V/200AH lead acid battery	1
Inverter	500W	1
Controller box	Controller & battery inside	1
Cable and wire	Set	1



#### **Recommended loads Description:**

Design load name	Specification	Load power	Amount	Operating time
Lights	energy-saving lamp	11W	*3pcs	6 hours/day
Fans	small	25W	*1pcs	5 hour/day
LCD Television	19inch	60W	*1pcs	4 hours/day
Total		118W		

### 500W Off-grid Solar System

#### **Characteristics:**

- Can provide electricity for 6-8hours/day
- Can guarantee (electricity for) two consecutive rainy/cloudy days
- Output voltage is customized, DC12V, AC110/220/230V
- Protection: Battery Charger Protection, Battery Low Voltage Protection, Overload Short Circuit Protection, Thermal Protection, Fault Indication Function



#### Cost: USD2, 700.00



### Main equipment list

ltem	Main Descriptions	Qty.
Solar panel	125Wp/12V	4
Mounting structure	Roof, pole and ground mounted	1
Controller	48V/15A	1
Battery	12V/130AH lead acid battery	4
Inverter	1kW	1
Controller box	Controller & battery inside	1
Cable and wire	Set	1

### **Recommended loads Description:**

Design load name	Specification	Load power	QTY	Operating time
Lights	Energy-saving lamp	11W	*4pcs	6 hours/day
Fans	Small	25W	*1pcs	6 hour/day
Washing machine		300W	*1pcs	1.5 hours/day
Computer	LCD laptop	130W	*1pcs	5 hours/day
Television	21inch	80W	*1pcs	5 hours/day
Total		579W		





#### **DIY Considerations**

If you could not find matched product in our catalog, please tell us your loads information as listed table below we will give customized solution accordingly.

#### **Loads Information**

Design load name	Specification	Load power	QTY	Operating time

#### Suggestions to customer:

- Do energy saving preparations before getting to use solar power system.
- Move unnecessary appliances out of your home
- Optimize operating time of all appliances
- Tell us your application site and surroundings
- Vour work can help yourself to reduce initial investment.



### Part 2. LED SOLAR STREET LIGHT

### Introduction

Solar street lights are a reliable and efficient system for Outdoor Area Lighting. It is a stand-alone system with all components mounted onto a pole with necessary hardware and cables.

This system is designed for outdoor application in un-electrified remote rural areas. This system is an ideal application for campus and village street lighting. The system is provided with battery storage backup sufficient to operate the light for 8-10 hours daily. The system is provided with automatic ON/OFF time switch for dusk to down operation and overcharge / deep discharge prevention cut-off with LED indicators.





### **Applications:**



### Design guide

The KHCK Design Guide is an interactive tool used to help guide you through the selection process of our

products. With hundreds models this is the most versatile tool ever created for sizing and specifying Solar Street Light Systems. There is 5 step processes to get started.

We recommend you contact us as it is important to discuss load capabilities and voltage requirements for the power assemblies to correctly provide reliable power for your application.

The **KHCK** staff will be happy to speak with you to ensure we will provide the perfect product for your application. You can have further inquiry with our engineers if you are unsure of your product selection.



### **Benefits:**

- Easy set up with no trenching or wiring
- > Minimum running cost, no electricity bill and maintenance
- Eco-Friendly
- Automatically operated
- Easy to transfer to another site
- Independent from normal electric supply
- Component lifetime of 25 years

### Zone of applications

- Southeast Asia,
- Middle and north Africa,
- Middle east
- Middle and south America

### **KHCK** service scope

- Pre-consultancy
- Design
- Installation
- After sale service & track





### **Projects and Achievements**

KHCK offers hundreds models of commercial lighting. Below are examples of typical ones. Our products come complete with a Solar Electric Power Assembly sized specifically for your application and location.

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### **Project site:**

Chang ping district, Beijing

- 4\*50W solar panel
- 2\*100AH/12V battery with battery enclosure
- 15A/24V charge controller with automatic time and light control
- 50W LED lamp with fixture
- 8m galvanized steel pole





### **Project site:**

Stadium Park, Beijing

- 100W solar panel
- 100AH/12V battery with battery enclosure
- 10A/12V charge controller with automatic time and light control
- 18W LED lamp with fixture
- 4m galvanized steel pole





### **Project site:**

Solar-power Lighting Project for Iraq

- 2\*150W solar panel
- 2\*150AH/12V battery with battery enclosure
- 15A/24V charge controller with automatic time and light control
- 85W LPSL lamp with fixture
- 10m galvanized steel pole





### **Project site:**

Solar-power Lighting Project for New Countryside Building, Qinghai, China

- 100W solar panel
- 100AH/12V battery with battery enclosure
- 15A/24V charge controller with automatic time and light control
- 20W LED lamp with fixture
- 5m galvanized steel pole

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### **Project site:**

Suburb solar-power Lighting Project, Qingdao, China

- 2\*150W solar panel
- 2\*100AH/12V battery with battery enclosure
- 15A/24V charge controller with automatic time and light control
- 30W LED lamp and 50W LED lamp with fixture
- 8m galvanized steel pole





### Photos Gallery



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# KHCK

### Latest & ongoing projects

- 60sets 100W NGO solar street lamp and 30sets 300W solar power system for Philippines primary school
- 80sets 110W solar street light for Botswana
- 100sets 150W solar street light for Iraq
- 750sets 50W small solar home system for Tibet china.
- 20,000sets 50W SHS for Mongolia.

### **Questions for you:**

- 1. Equivalent power of lighting source:----- W
- 2. Type of lighting source:-----
- 3. Height of pole:----- m
- 4. Material of pole:-----
- 5. Wind speed:----- m/s
- 6. Consecutive rainy and cloudy days:----- days
- 7. Daily working hours per night:----- Hrs
- 8. Installation site:----- city
- 9. Special requirements, such as design, half power working situation, LED lighting source and others



We list part of projects we and our partner did before for your reference, please send us your requirement details and document to us if you need our help, such as project pre-consultancy, design, installation and after sale service.

1. Project name: The project of utilizing solar energy in China Millennium Monument

#### Project background:

The project is a supported project by the management committee of Zhongguancun Science and Technology Park. In this project, our company assumed the design of China Millennium Monument, the installation of one set 10kWp grid-on solar energy power station and 7kWp BIPV grid-on solar energy system as well as the design of the solar energy science gallery, construction and installation, to meet the needs of holding many large-scale celebrations in this area.



#### 2. Project name: National Stadium 100kWp grid-on PV power station

#### Project background:

The project will be built on the central area of the Beijing Olympic Games, combining with the National Stadium, to construct a 100kWp grid-on PV power generation system. The project will fully embody the concept of Beijing Olympics "Hi-tech Olympics, Green Olympics", making a good model for the applications of combining the PV power generating and architecture.





#### **3. Project name:** Four schools in Tibet without electricity.

#### Project background:

The construction of demonstration of PV power plant and the R & D projects of key equipment of four schools in Tibet without electricity has already built more than or equal to 30kWp of the total capacity of PV power station for the four schools, which improve the teaching conditions and living standard of teacher and students largely.

The four PV power stations built in this project use the control and invert equipments of high technology, including many advanced technology such as the inverter has a sleep and wake-up function; the MPPT technology of solar power; the multi-signal acquisition of battery capacity and to achieve precise control of charging and discharging by hybrid determination.



### 4. Project name: Brightness pilot projects in Tibet

#### Project background:

In order to promote large-scale PV system and gather experience for brightness projects in Tibet, the company started the brightness pilot projects since 2000. 4 sets of 6KW PV power station were completed during that year. All the PV systems are all running well now.





5. Project name: The 25KWp grid-on PV power station of Hainan hope project gas station

#### Project background:

The project is installed on the roof of the gas station, to supply the power for the electrical equipment of the gas station. The 25KWp grid-on PV power station can generate the power capacity of 27,400 degrees per year.



6. Project name: The 10KWp grid-on PV station of Western energy action

#### Project background:

The project is one of the most important subjects of "Western new energy action", aiming at the research and development of the grid-on PV system in high-altitude and alpine region in Tibet and to study the system design and the key equipments of controller and inverter and to put into the model run.





7. Project name: The 1MWp grid-on PV project of Shenzhen International Flower Expo Garden

#### Project background:

The capacity of this project is grid-on the largest power station of all the Asian countries, also one of the few MW solar energy PV stations. Before it, the largest station in China is no more than 100KWp. This project is the model of the grid-on PV power station in China.



### 8. Project name: "Power to the rural" project in Nagqu, Tibet

#### Project background:

In this project, the company assumed the Nagqu non-electricity villages' PV power station as well as the wind and pv hybrid project, which has the worst climate, the highest altitude and the most difficult conditions (4200m-5450m above the sea level), the total investment is 200 million Yuan





9. Project name: Renewable energy demonstration base in Tibet Autonomous Region

#### Project background:

This base covers an area of 169mu and can construct a 5MW grid-on generating system. At present the control room with an area of 460m2 has completed, on whose roof the 3.52KW PV demonstration power station is installed as well as the meteorological measurement system.



#### 10. Project name: The Fairy Bay checkpoints Mission 13 of Xinjiang Border

#### Project background:

In July 2006, the company donated a 3KWp independent PV system to the world's highest border, to solve the lighting for local officers, television and computer's power problem; two sets of 150Wp households were used for the radio system and computer; one monitoring system to ensure a better homeland patrols in remote border areas of difficult problems, help maintain the stability of the border of the motherland.



#### 11. Project name: Brightness project in Ali, Tibet

#### Project background:

This project solves all the electricity problem of population without electricity, constructed 38 concentrated PV power plants totally, promoted 11000 sets of households, 12 sets of satellite receiving stations and 32 sets of PV water pump.

