

# **COMPANY PRESENTATION**

OCTOBER, 2015

### HEC

Hydroenergy Company JSC began as Hydroenergostroy – a construction company established in bulgaria in 1998. We have been expanding ever since and currently we have more than 430 employees with offices in Bulgaria, Chile, United Kingdom, the United States of America, Japan and Greece.

In 2002, the company expanded its scope of services by adding construction of Hydropower Plants to its portfolio and becoming a leader on the Bulgarian market.

So far, we have constructed and commissioned more than 120 power plants – both hydro and solar. In 2006, we started developing and constructing solar PV installations and currently our services are available worldwide.

THE COMPANY HAS MORE THAN 1,000 MWP EXPERIENCE IN CONSTRUCTION OF VARIOUS PARTS OF SOLAR PV PLANTS. OUR SCOPE OF SERVICE SUPPLY VARIES DEPENDING ON THE INTEREST OF OUR CONTRACTING PARTY. WE ARE WILLING TO SUPPORT OUR PARTNERS PROVIDING THEM EITHER OF THE SERVICES, WITH THE FOCUS OF MECHANICAL OR ELECTRICAL INSTALLATION. ALL SERVICES PROVIDED BY HEC ARE DIRECTLY EXECUTED BY TEAMS OF MORE THAN 400 PEOPLE PERSONNEL.



PV Project Hadjidimovo, 11 MWp Bulgaria



### **PV SECTOR**

Our scope of services in the PV sector is based on our <u>Total</u>

<u>Construction Management concept</u>, providing the whole spectrum of on-site works:

#### I. PERMITTING AND LICENSING

#### II. ENGINEERING

# III. SITE MANAGEMENT AND CIVIL WORKS

- SITE SETUP AND PREPARATION (TEMPORARY CONSTRUCTION, SANITATION, CONTAINER PROVISION, ETC.)
- ROADS AND COMPOUND AREA CONSTRUCTION;
- CONSTRUCTION OF FOUNDATIONS;
- EARTHWORKS;
- FENCING;
- HEALTH AND SAFETY MEASURES;
- WASTE MANAGEMENT;
- DUST CONTROL;
- ENVIRONMENTAL COMPLIANCE;
- SITE RESTORATION

#### IV. MECHANICAL INSTALLATION

- PRE-DRILLING;
- RAMMING:

- TABLE ASSEMBLY;
- MODULE DEPLOYMENT

#### V. ELECTRICAL INSTALLATION

- DC/AC CABLE LAYING;
- EQUIPOTENTIAL INSTALLATION;
- Installation of Main PV Equipment;
- CCTV and Monitoring System Installation;
- CABLE TERMINATION;
- MEASUREMENTS AND TESTING;
- COMMISSIONING:
- AS-BUILD DOCUMENTATION

#### VI. MATERIALS SUPPLY

- SUPPORT STRUCTURE:
- DC/AC CABLES;
- MC 4 CONNECTORS;
- EARTHING COMPONENTS;
- FENCE AND GATES;

# VII. PULL-OUT TESTS VIII. OPERATION AND MAINTENANCE









### WIND SECTOR

HEC OPERATES IN THE FIELD OF THE REPOWER WIND SECTOR BY CARRYING ON THE ACTIVITIES OF ASSEMBLY AND DISASSEMBLY OF WIND GENERATORS IN ALL EUROPEAN COUNTRIES. HAVING THE EXPERIENCE OF PERFORMING SEVERAL PROJECTS IN GERMANY AND PROVING ITSELF TO BE A HIGH QUALITY SERVICE PROVIDER, HEC QUICKLY GAINS SPEED IN THE RENEWABLES SECTOR.

WE OFFER FULL CONSTRUCTION MANAGEMENT SERVICES, I. E. ROAD DEVELOPMENT AND CONSTRUCTION, FOUNDATIONS INSTALLATION, LAYING OF CABLES, ETC.





### HYDROPOWER SECTOR

Hydroenergy Company Ltd. has more than 15 years of experience in Hydropower sector. As one of the leaders on the Bulgarian market, we have proven our that our high quality services can satisfy even the most sensitive palate. We offer a full range project services starting from the planning stage and ending with the operation and maintenance services for the plant. We have constructed more than 13 hydropower plants and we are executing the O&M services for more than half of them.



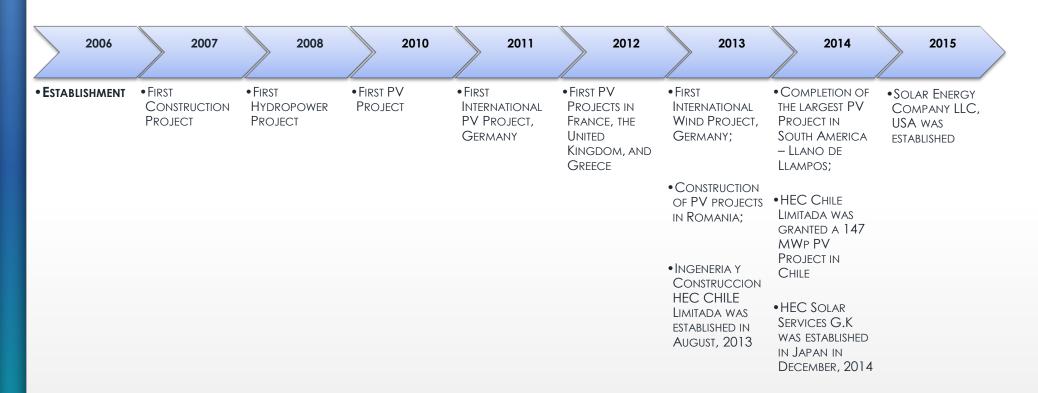






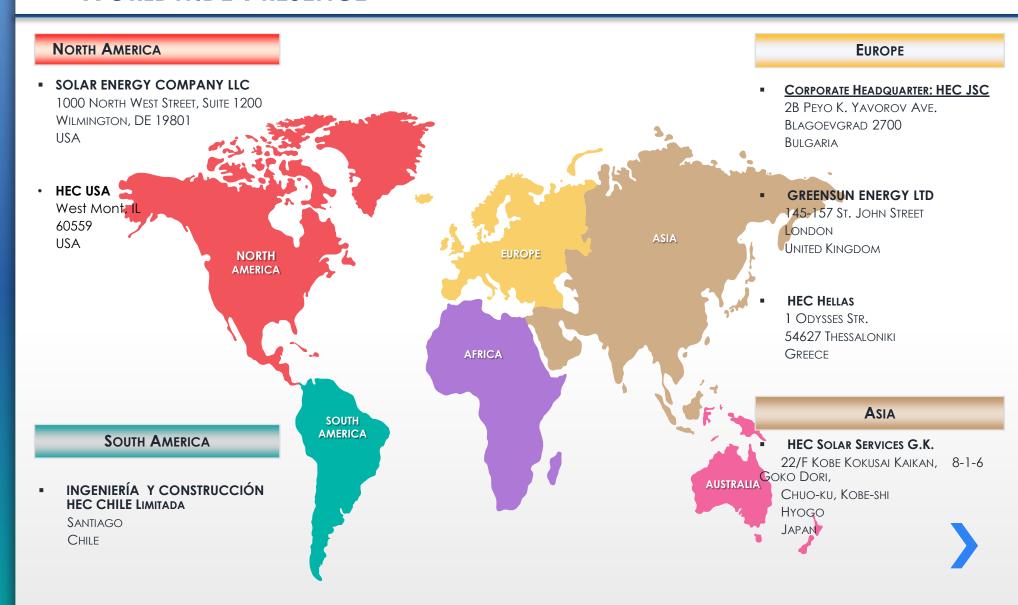
### **OUR HISTORY**

HEC is a highly flexible and creative organization, devoted to help our clients and investors in order to meet their goals. HEC has experience with more than 95 Photovoltaic Power Plants that were developed in the past three years and we manage to coordinate all the activities during the construction phase of the projects.





### **WORLDWIDE PRESENCE**



### WHY CHOOSING HEC?

The spirit of our company is driven by the constant desire to deliver optimal services and solutions to our clients. By creating expedient mixture of technological expertise, economical know-how, and ecological insight we strive to bring our own and our customers' ideas into exemplary results. As a company operating in the renewable energy sector, we strive for perfection! As a turn-key provider, our business philosophy is based on three main pillars.

- ✓ ENABLE THE INVESTOR TO SMOOTHLY ENTER AT ANY GIVEN STAGE OF THE PROJECT LIFE CYCLE:
- ✓ OPTIMIZE THE ECONOMICAL, FINANCIAL, TECHNICAL AND ECOLOGICAL VALUE OF THE PROJECT:
- ✓ SECURE A FLAWLESS AND VIABLE PROJECT OWNERSHIP TRANSITION.

HEC IS CERTIFIED IN THREE MAJOR CATEGORIES BY THE BULGARIAN CHAMBER OF COMMERCE (BCC):

- Group one (I) Category 3rd to 5th, HEC is certified for the construction of living spaces and office buildings with total area exceeding 5 000 M2, production facilities and factories with workforce between 200 and 1000 people.
- GROUP THREE (III) CATEGORY 1ST TO 5TH, HEC IS CERTIFIED FOR THE CONSTRUCTION OF ELECTRICAL POWER PLANTS (HYDRO, NUCLEAR, THERMAL, SOLAR, ETC.) BELOW AND ABOVE 100 MW, ELECTRICAL NETWORKS WITH CAPACITY OF 0.4 kV, 20kV, 110kV,400kV and over; all types of electrical installations
- Group four (IV) Category 1st to 5th, HEC is certified for the construction of water pipelines, water dams over 50 million m3 and dam wall over 80m, mines, stone pits, etc.

HEC IS CERTIFIED IN THE FOLLOWING FIELDS:

- ISO 9001 :2008
- ISO 14001 :2004
- OHSAS 18001:2007



#### Certificate of Registration

This is to certify that

#### HYDROENERGY COMPANY JSC

2B, P. K. Yavorov Blvd., 2700 Blagoevgrad, Bulgaria

operates a quality management system which has been assessed as conforming to

ISO 9001:2008

for the scope of activities

General construction of buildings and civil engineering works. Construction of hydropower and photovoltaic power plants.

Certificate No: CI/13353IQ Issue Date: 13 March 2015

Valid until 12 March 2018 subject to adherence to the agreed ongoing audit programme, successful endonement of certification following each audit and compliance with CI Regulations Date of original sizue: 13 March 2012.

Signed for and on behalf of







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www.cert-int.com



### **PV PROJECTS IN EUROPE**

#### EUROPE HEC JSC

#### • BULGARIA

- ✓ YEAR 2010 → 2.00 MWP
- ✓ YEAR 2011 → 5.00 MWP
- ✓ YEAR 2012 → 32.90 MWP

#### • ROMANIA

✓ YEAR 2013 → 3.10 MWP

#### • GREECE

✓ YEAR 2012 → 49.60 MWP

#### • GERMANY

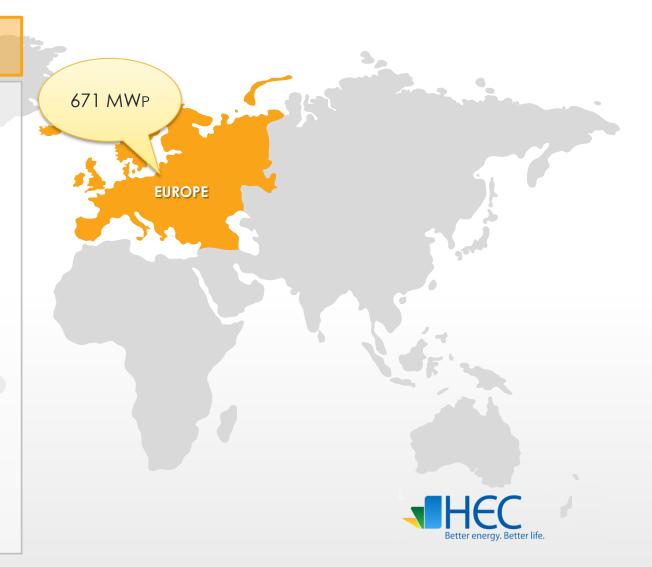
- ✓ YEAR 2011 → 6.40 MWP
- ✓ YEAR 2012 → 135.70 MWP
- ✓ YEAR 2013 → 37.20 MWP

#### • FRANCE

- ✓ YEAR 2012 → 21.00 MWP
- ✓ YEAR 2013 → 50.00 MWP

#### THE UNITED KINGDOM

- ✓ YEAR 2012 → 22.30 MWP
- ✓ YEAR 2013 → 96.60 MWP
- ✓ YEAR 2014 →146.10 MWP
- ✓ YEAR 2015 → 63.50 MWP



#### **PV Project Hadzhidimovo**

TOTAL POWER CAPACITY:

11.0 MWP
POWER CAPACITY INSTALLED BY HEC:
5.5 MWP
LOCATION:
BULGARIA
YEAR OF COMPLETION:
2012
SYSTEM INTEGRATOR:
HEC



#### **SCOPE OF WORKS**

- SITE SET-UP
- FENCING
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



### **PV Project Messolongi**

TOTAL POWER CAPACITY:

POWER CAPACITY INSTALLED BY HEC:

LOCATION:

GREECE
YEAR OF COMPLETION:

SYSTEM INTEGRATOR:

HEC



- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS



#### **PV PROJECT EGGERSDORF**

TOTAL POWER CAPACITY:

POWER CAPACITY INSTALLED BY HEC:

LOCATION:

YEAR OF COMPLETION:

SYSTEM INTEGRATOR:

20.3 MWP

20.3 MWP

20.3 MWP

20.3 MWP

20.3 MWP

4.1 MEC



#### **SCOPE OF WORKS**

- SITE SET-UP
- FENCING
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT RONNEBURG**

TOTAL POWER CAPACITY:

POWER CAPACITY INSTALLED BY HEC:

LOCATION:

YEAR OF COMPLETION:

SYSTEM INTEGRATOR:

20 MWP

4 MEC



#### **SCOPE OF WORKS**

- FENCING
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT CAUDOS II**

TOTAL POWER CAPACITY: 10.5 MWP
POWER CAPACITY INSTALLED BY HEC: 10.5 MWP
LOCATION: FRANCE
YEAR OF COMPLETION: 2012
SYSTEM INTEGRATOR: HEC



#### **SCOPE OF WORKS**

- SITE SET-UP
- FENCING
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT ORTAFFA**

TOTAL POWER CAPACITY:

POWER CAPACITY INSTALLED BY HEC:

LOCATION:

YEAR OF COMPLETION:

SYSTEM INTEGRATOR:

25 MWP

25 MWP

25 MWP

20 MPP

21 MPP

22 MWP

23 MWP

24 MPP

25 MWP

25 MWP

26 MPP

26 MPP

27 MPP

28 MPP

28 MPP

29 MPP

20 MPP

21 MPP

25 MWP

26 MPP

27 MPP

28 MPP

29 MPP

20 MPP

2



#### **SCOPE OF WORKS**

- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT THE HOLLIES**

TOTAL POWER CAPACITY: 10.4 MWP
POWER CAPACITY INSTALLED BY HEC: 10.4 MWP

LOCATION: THE UNITED KINGDOM

YEAR OF COMPLETION: 2013 SYSTEM INTEGRATOR: HEC



- SITE SET-UP
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- TRENCHES
- CABLE LAYING
- MATERIAL LOGISTICS



#### **PV PROJECT NINNIS FARM**

TOTAL POWER CAPACITY: 3.8 MWP
POWER CAPACITY INSTALLED BY HEC: 3.8 MWP

LOCATION: THE UNITED KINGDOM

YEAR OF COMPLETION: 2013 SYSTEM INTEGRATOR: HEC



- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS



#### **PV PROJECT GOONHILLY**

TOTAL POWER CAPACITY: 4.5 MWP
POWER CAPACITY INSTALLED BY HEC: 4.5 MWP

LOCATION: UNITED KINGDOM

YEAR OF COMPLETION: 2014
SYSTEM INTEGRATOR: HEC



- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS



#### **PV PROJECT PYDE DROVE**

TOTAL POWER CAPACITY: 8.4 MWP
POWER CAPACITY INSTALLED BY HEC: 8.4 MWP

LOCATION: UNITED KINGDOM

YEAR OF COMPLETION: 2014
SYSTEM INTEGRATOR: HEC



- SITE SET-UP
- ROAD CONSTRUCTION
- EARTHWORKS
- FENCING
- MATERIALS LOGISTICS
- LAYING OF CABLES
- DC I AC CONNECTION AND
- ELECTRICAL COMPONENTS DELIVERY
- TEST PROTOCOLS



#### **PV PROJECT CASTLE EATON**

TOTAL POWER CAPACITY: 17.8 MWP
POWER CAPACITY INSTALLED BY HEC: 17.8 MWP

LOCATION: UNITED KINGDOM

YEAR OF COMPLETION: 2014 SYSTEM INTEGRATOR: HEC



#### **SCOPE OF WORKS**

- SITE SET-UP
- FENCING
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT MONKSHAM**

TOTAL POWER CAPACITY: 10.8 MWP
POWER CAPACITY INSTALLED BY HEC: 10.8 MWP

LOCATION: UNITED KINGDOM

YEAR OF COMPLETION: 2014 SYSTEM INTEGRATOR: HEC



#### **SCOPE OF WORKS**

- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



#### **PV PROJECT HULLAVINGTON**

TOTAL POWER CAPACITY: 8.32 MWP
POWER CAPACITY INSTALLED BY HEC: 8.32 MWP

LOCATION: UNITED KINGDOM

YEAR OF COMPLETION: 2014
SYSTEM INTEGRATOR: HEC



#### **SCOPE OF WORKS**

- SITE SET-UP
- FENCING
- RAMMING OF PILES
- ASSEMBLY OF MOUNTING STRUCTURE
- MODULE DEPLOYMENT
- MATERIAL LOGISTICS
- TRENCHES
- CABLE LAYING
- DC/AC CONNECTION AND TERMINATION
- TESTING AND COMMISSIONING
- PARTIAL PROCUREMENT



### PV PROJECTS IN SOUTH AMERICA



#### SOUTH AMERICA INGENERIA Y CONSTRUCCION HEC CHILE LIMITADA

LLANO DE LLAMPOS SOLAR PHOTOVOLTAIC PLANT 100 MWP

CHILE

SAN ANDRES SOLAR PHOTOVOLTAIC PLANT 51 MWP

CHILE

PULL OUT TEST SAN PEDRO III SOLAR PHOTOVOLTAIC

**PLANT** 

33.6 MWP

CHILE

PULL OUT TEST FOTONES SOLAR PHOTOVOLTAIC PLANT 40 MWP

CHILE

LUZ DEL NORTE SOLAR PHOTOVOLTAIC PLANT

147 MWP

CHILE

PARTIAL WORKS ANDES SOLAR PARK

23 MWP

CHILE



### INGENERIA Y CONSTRUCCION HEC CHILE LIMITADA

INGENIERIA Y CONSTRUCCION HEC CHILE LIMITADA IS A LIMITED LIABILITY COMPANY WITH REGISTERED HEADQUARTERS IN SANTIAGO, CHILE. THE COMPANY, CREATED IN AUGUST 2013 PROVIDES CONSTRUCTION AND ASSEMBLY SERVICES FOR THE DEVELOPMENT OF PHOTOVOLTAIC POWER PLANTS ON THE TERRITORY OF THE COUNTRY AND ABROAD.

THE COMPANY STARTED ITS OPERATION IN CHILE IN THE BEGINNING OF Q3 2013. IN AUGUST 2013 HEC CHILE LIMITADA WAS GRANTED THE EXECUTION OF 62 MWP OUF OF 100 MWP OF THE PV POWER PLANT LLAND DE LLAMPOS - SOLAR PHOTOVOLTAIC (PV) POWER PLANT PROJECT, ATACAMA, CHILE.

On June 5, 2014, in Copiapo, Chile, the President Michelle Bachelet inaugurated the "Solar Sunrise CAP" Plant which is the largest solar park in Latin America and one of the largest in the world. The project was developed, built and interconnected by the company SunEdison, a worldwide leader in the field of solar energy. As a Main Subcontractor, HEC Chile Limitada executed 62 MW of the project including structure and tracker systems assembly, electrical and topographic works, supply of materials, as well as measurements and testing of the plant.

The Luz Del Norte Solar Photovoltaic plant is expected to be the largest PV plant in South America when completed. The plant;s first PV module was installed during an official ceremony on October 17<sup>th</sup>, 2014. The ceremony was attended by Chilean President Michelle Bachelet, Isabel Allende, president of the Chilean Senate, and Energy Minister Máximo Pacheco.







# **OUR REFERENCES**

#### LLANO DE LLAMPOS SOLAR PHOTOVOLTAIC PLANT

TOTAL POWER CAPACITY: 100 MWP
POWER CAPACITY INSTALLED BY HEC: 62 MWP
LOCATION: CHILE
YEAR OF COMPLETION: 2014
SYSTEM INTEGRATOR: HEC



- SURVEYING;
- Pre-drilling of piles;
- TRACKER ASSEMBLY;
- MODULE DEPLOYMENT;
- LAYING OF CABLES;
- DC/AC CONNECTION;
- ELECTRICAL COMPONENTS DELIVERY;
- TEST PROTOCOLS



# **OUR REFERENCES**

#### SAN ANDRESSOLAR PHOTOVOLTAIC PLANT

TOTAL POWER CAPACITY: 51 MWP
POWER CAPACITY INSTALLED BY HEC: 10 MWP
LOCATION: CHILE
YEAR OF COMPLETION: 2014
SYSTEM INTEGRATOR: HEC



- SURVEYING;
- PRE-DRILLING OF PILES;
- TRACKER ASSEMBLY;
- MODULE DEPLOYMENT;
- LAYING OF CABLES;
- DC/AC CONNECTION;
- ELECTRICAL COMPONENTS DELIVERY;
- Test Protocols



# **OUR REFERENCES**

#### LUZ DEL NORTE SOLAR PHOTOVOLTAIC PLANT

POWER CAPACITY: 147 MWP LOCATION: CHILE

YEAR OF COMPLETION: IN CONSTRUCTION

MAIN SUB-CONTRACTOR: HEC



#### **PROJECT DESCRIPTION**

The Luz del Norte photovoltaic solar plant is located in the Atacama Region near the city of Copiapo and has an installed capacity of 147MWp. The plant consists of 1,511,880 thin-film photovoltaic modules spread across 458 hectares. The plant is expected to be finished during Q4 2015.

#### **SCOPE OF WORKS**



### PV MARKET IN NORTH AMERICA



#### NORTH AMERICA

#### • THE UNITED STATES OF AMERICA

SOLAR ENERGY COMPANY WAS FORMED AS A LIMITED LIABILITY COMPANY IN ACCORDANCE WITH THE LAWS AND REGULATIONS OF THE STATE OF DELAWARE.

USA IS A NEW MARKET TO HEC BUT, BASED ON HEC'S EXPERIENCE ALL OVER THE WORLD, WE ARE READY TO FACE ANY CHALLENGE THAT MAY ARISE. HEC PROVIDES FULL SUPPORT IN ALL FUTURE WORK THAT IS PLANNED TO BE PERFORMED BY SEC.

#### SOLAR ENERGY COMPANY LLC

WWW.SOLAR-EC.COM

1000 North West Street, Suite 1200 Wilmington, DE 19801 USA



### PV MARKET IN ASIA

#### ASIA

#### JORDAN

SINCE MAY 2014, HYDROENERGY COMPANY JSC IS A MEMBER OF THE HASHEMITE KINGDOM OF JORDAN. THE HONORARY CONSULATE OF THE HASHEMITE KINGDOM OF JORDAN IN SOFIA IS DR. HASAN BARMAWI. THE PRIORITY OF THE BULGARIAN-JORDAN PARTNERSHIP IS THE MUTUAL BENEFICIAL ECONOMIC INITIATIVES IN THE FIELD OF CIVIL AND ENGINEERING CONSTRUCTION, INFRASTRUCTURE, AGRICULTURE, TOURISM AND CULTURE.

HEC IS LOOKING TO START OPERATING ACTIVITIES IN JORDAN IN Q1 2015. SO FAR, THE COMPANY HAS ENTERED IN PRELIMINARY DISCUSSIONS FOR THE CONSTRUCTION OF A PORTFOLIO OF 100MW PV PROJECTS.

#### • JAPAN

HEC SOLAR SERVICES G.K WAS INCORPORATED ON DECEMBER 19, 2014.

THE COMPANY IS CURRENTLY PARTICIPATING IN SEVERAL TENDER PROCEDURES FOR CONSTRUCTION OF PHOTOVOLTAIC POWER PLANTS ON THE TERRITORY OF JAPAN.

The projected portfolio of projects for the beginning of Q2 2015 is approximately 40 MW.



# PV PROJECTS IN ASIA

# ASIA HEC SOLAR SERVICES G.K.

• KAWASAKI SOLAR PV PROJECT
19.8 MWP
JAPAN



### **HEC CONTACTS**

### **HEC JSC**

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