

# TOURISM INNOVATIVE TRENDS



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## ENERGY SOLUTIONS

**General presentation and consortium structure**

October 2013

# AGENDA

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**PART 1: Tourism Innovative Trends Ltd & ILB HELIOS AG**

**PART 2: CONSORTIUM FOR PV PROJECTS**

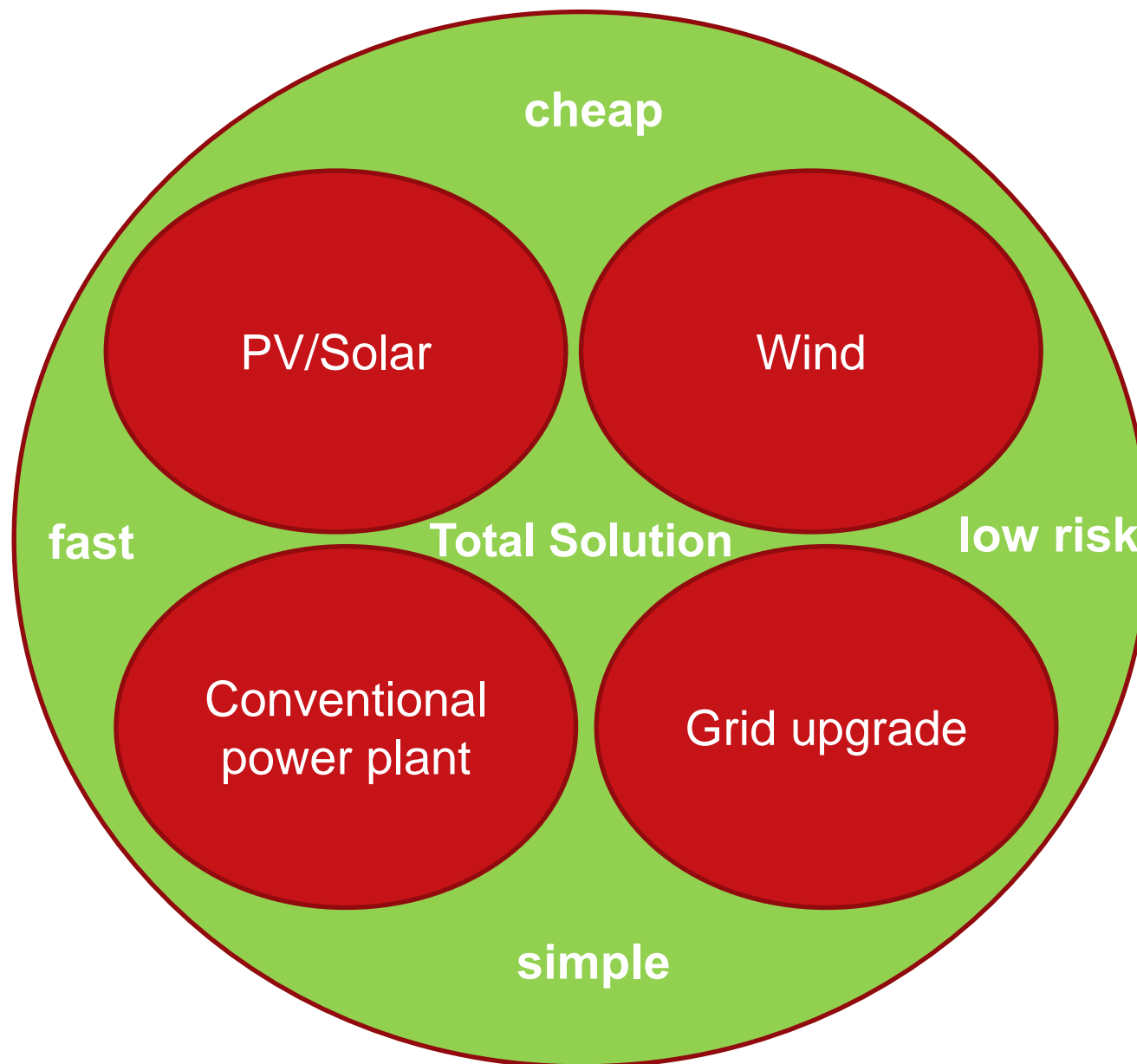
**PART 3: FURTHER ILB HELIOS CONSORTIUM MEMBERS**

**PART 4: THE REALIZATION OF A LARGE SCALE PV PROJECT**

## Who we are

- Tourism Innovative Trends was founded in 2011 and is involved in the field of tourism investment projects, marketing research and development of world wide tourism trends and green energy sustainable solutions. Tourism Innovative Trends acted as a local partner of ILB Helios and developed the biggest PV portfolio in Bulgaria of 85 MW projects successfully working up to now that was an investment of more than 250 000 000 Euro together with China Development Bank with one of the biggest EPC German constructors "CONECON".
- ILB Helios AG is a privately owned company in the energy industry. We act as the central partner for energy project realization all around the world.
- The team of ILB Helios AG has long term experience in power business in general as well in the PV industry in particular. Many of the team members have started their professional career at ABB at several middle and executive positions.
- All companies belonging to the consortium structure formed by ILB Helios AG are characterised by long-termed experience in the energy sector and due to their quality demands ranking in top positions in the respective markets.
- ILB Helios AG is a former ABB company and has been in power business since its establishment
- As the first company world wide ILB Helios Group products, production facilities and projects are approved and audited by ALLIANZ CLIMATE SOLUTIONS GmbH.

## Energy solutions we deliver





## Some facts on our history

1988	• BBC/ASEA merger: Central service company for ABB
1991	• Independent subsidiary founded: ABB Logistikbetriebe AG
1993	• Acquired by ITC Inotech Consulting AG (BBC/ABB Consulting) => LB Logistikbetriebe AG
2003	• Launching Sino-Swiss JV Global Industrial Supply in Beijing
2004	• ILB International Logistikbetriebe AG: Spin off from LB Logistikbetriebe AG
2004	• ISO 9001 / 14001 / BMECat
2006	• Foundation of ILB Helios AG
2006-2011	• PV-Project development and realisation in Spain/Italy and Germany
2010	• SN EN ISO 9001: 2008 / 14001 :2004 / BMECat
2011-2012	• PV-Project development and realisation in Bulgaria

## Our approach – key values

- Modern business requires clear and guiding values for fulfillment and exceeding client expectations.
- We see and live values like reliability, flexibility, commitment and clear focus on objectives to be achieved as well as professional competence as being important and guiding to us.
- Furthermore ILB Helios AG is always close to its clients and guiding them in realizing their projects in a professional manner.
- We stand for high performance, high quality, professional management, team spirit and fairness.
- At the same time we feel responsible for our environment and we believe in sustainable economic growth.
- All this demands highly developed management skills as well as hands-on mentality which we consider all mandatory in order to satisfy the needs of our clients and which we can offer also due to many years of professional experience.

## Our approach – key services





# PV Project – recently realized cases

**Pobeda, Bulgaria**

**50.61 MWp**



<b>Location</b>	Dolna Mitropolia, Bulgaria (Pobeda)
<b>Investment Partner</b>	Hareon(Switzerland) holding corporation
<b>Land Size</b>	101,7 hectare
<b>System Type</b>	Ground
<b>Power Company</b>	NEK
<b>EPC Partner</b>	ABB, Conecon
<b>Construction Period</b>	December 2011 - May 2012



# PV Project – recently realized cases

Cherganovo, Bulgaria

29.30 MWp



<b>Location</b>	Kazanluk, Bulgaria (Cherganovo)
<b>Investment Partner</b>	Hareon(Switzerland) holding corporation
<b>Land Size</b>	60 hectare
<b>System Type</b>	Ground
<b>Power Company</b>	NEK
<b>EPC Partner</b>	ABB, Conecon
<b>Construction Period</b>	April 2012 - June 2012



# PV Project – recently realized cases

Ucea de Sus, Romania

54.99 MWp



<b>Location</b>	Ucea de Sus, Romania
Investment Partner	Hareon (Switzerland) holding corporation
System Type	Ground
Power Company	Electrica Transilvania Distributie Sud
EPC Partner	ABB, Conecon, Energobit
Construction Period	April 2013 - September 2013

# AGENDA

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**PART 1: ILB HELIOS AG**

**PART 2: CONSORTIUM FOR PV PROJECTS**

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## PART 2: CONSORTIUM FOR PV PROJECTS

### Consortium leader

- Cooperation with Allianz Climate Solutions
- Realization phases
- General consortium set up
- Highest quality & performance of PV plants



# H1 Venture Swiss Holding AG

- H1 Venture Swiss Holding AG (“H1”), a company incorporated under Swiss law, has been established and is fully owned by Hareon Solar Technology Ltd, one of the world leading PV crystalline module manufacturers
- The objective of H1 is to centralize all project investments by Hareon worldwide
- President of the Board of H1 is Mr. Günther Stonig who is also CEO of ILB Helios AG, a company incorporated under Swiss Law, which is the leading business development and project management partner to Hareon
- H1 has been formed as an international consortium of leading companies in the PV realization industry to ensure highest quality and performance of its PV projects worldwide

# 海润光伏科技股份有限公司在上海证交所



- Hareon was established in 2005
- February 2012 , Hareon lists on the Shanghai stock exchange (SSE# : 600401).
- Hareon is the largest Chinese Solar PV company with market capitalisation exceeding USD 1 billion.
- Globally No.2 behind First Solar.

# Strategic development

## Hareon Strategy & Execution

**2005**

- ✓ Take a leading position in production of mono-crystalline wafer.

**2008**

- ✓ Enter the multi-crystalline wafer and module market.

**2010**

- ✓ Take the leading position amongst Chinese Solar Cell Producers
- ✓ Position as one of the largest solar PV manufacturers in China
- ✓ Take a leading role in solar PV R&D.



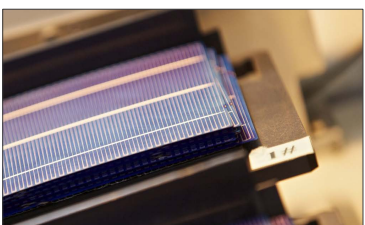


**2011**

- ✓ Become the manufacturing partner of Global Brands – BP Solar, Schott, Schueco, Mage
- ✓ Develop the concept of “Brand Behind the Brands” .

**2012**

- ✓ Public Listing.
- ✓ Position globally as a leading developer of utility scale solar projects.

# Products & Capacity

				
Polysilicon	Wafer	Solar Cell	Solar Module	Solar System
	Wafer	Cell	Module	Project*
<b>2010 Capacity</b>	360MW	480MW	150MW	0MW
<b>2011 Capacity</b>	498MW	1510MW	760MW	29MW
<b>2012 Capacity</b>	800MW	1510MW	1080MW	302MW

\* Actual grid connected.

\*\* Hareon module capacity only this excludes the additional 300 MW JV with Schott Solar



# Manufacturing sites



**Hefei**  
Cell




**Taicang**



**Jiangyin Xinqiao**  
Cell / Module



**Jiangyin Huangtang**  
Wafer / Module

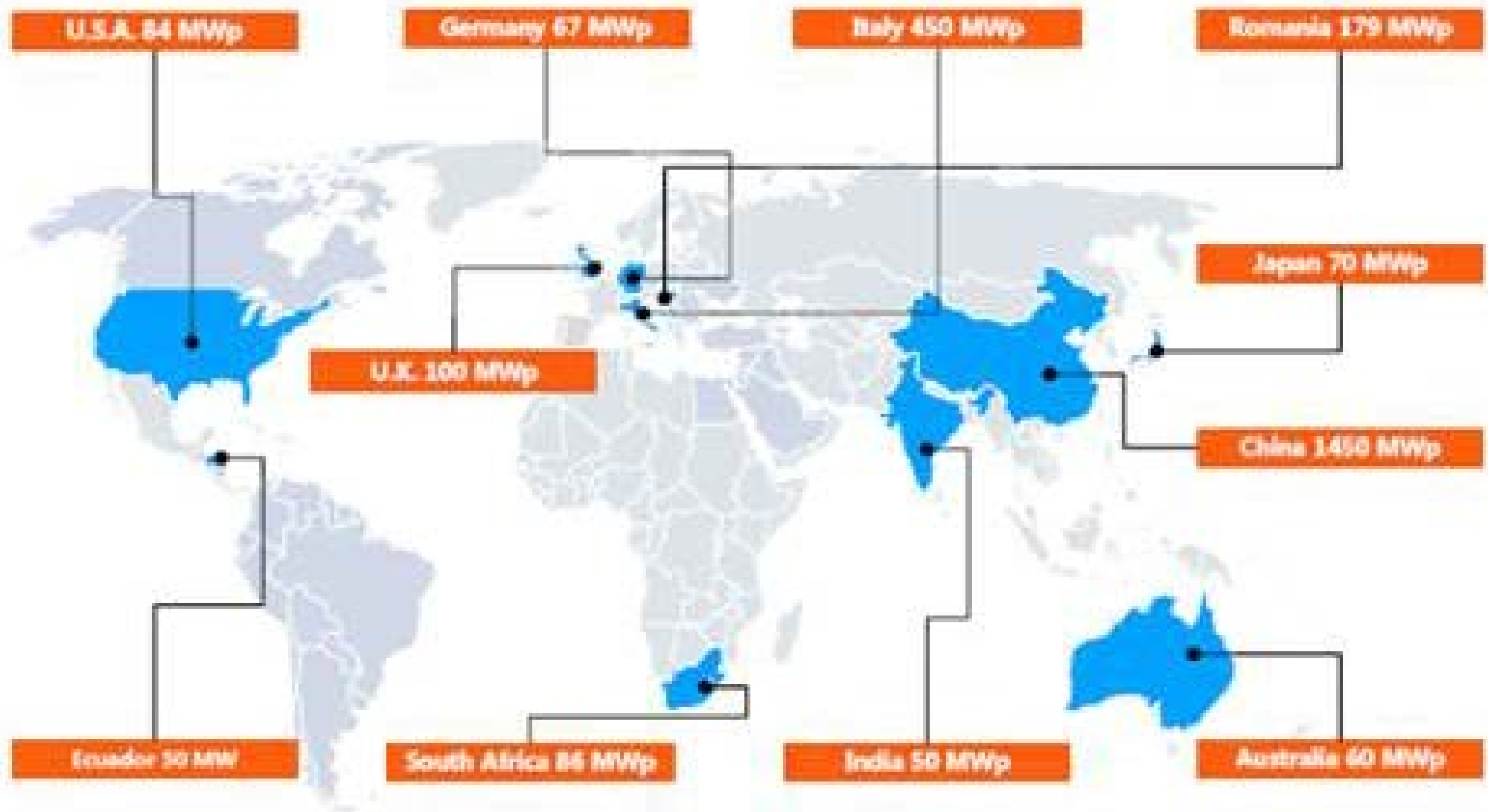
 **Hareon Solar**

# Sales Network



Hareon Solar has sales network covered all over the world, products are being exported to Germany, Spain, Italy, France and other European countries as well as the United States, Korea, India, Australia, Japan and other emerging photovoltaic markets. In the United States, Germany, Switzerland, Italy, South Korea, Japan have set up branches, and established 12 wholly-owned or invested solar project firms national wide and abroad.

## Project Pipeline – up to 3 GW





## Key takeaways (1/2)

- Hareon is a Chinese Public Company listed on the Shanghai Stock Exchange.
- Market capitalisation exceeds USD 1 Billion
- Hareon Sales place them in the Top 5 of global players.
- Hareon is a fully integrated player from silicon to power generation.
- In 1 year Hareon has established itself as one of the world's largest solar PV project investors and developers. Investments above EUR 200 million and up to EUR 1 billion per year – depending on proper project pipeline
- Hareon success is the strength of its management team and its people. This has been driven by diligence, commitment and generating trust.



## Key takeaways (2/2)

- Hareon has formed strong partnerships with global brands an example being the 300 MW joint venture with Schott Solar.
- This commitment to customers resulted historically in less recognition of the Hareon brand.
- Hareon has forged strong relationships with institutions such as Allianz and the China Development Bank (CDB).
- Only Hareon has an Allianz approved manufacturing facility in China. Every project is done with Allianz risk assessment and TÜV SÜD QA
- The CDB continue to place trust in Hareon management with funding execution during the PV downturn.
- Hareon is committed to the delivery of large scale solar projects that meet investor and grid operator expectation for life and performance.

## Some facts on our PV experience

- PV modules in operation since 2004
  - Hareon Solar: > 5.000 MW
  - ILB Helios: > 400 MW
- Project consulting by ILB Helios for > 1.000 MW installed capacity
- Own project realization via H1 Venture Swiss Holding AG since 2011:
  - > 200 MW
- Projects under construction with own financing:
  - > 400 MW
  - Current locations: USA, Canada, UK, Romania, China
- Project realization targets per year:
  - 1 GW in China
  - 1 GW outside China

## PART 2: CONSORTIUM FOR PV PROJECTS

- Consortium leader

### **Cooperation with Allianz Climate Solutions**

- Realization phases
- General consortium set up
- Highest quality & performance of PV plants

## Cooperation with Allianz Climate Solutions

- Allianz Climate Solutions GmbH (ACS) has been engaged to evaluate production of and consequently the bankability of Hareon modules from a technical point of view at the production site in NO.15 Xinyang Road, Xinqiao Industry Park, Jiangyin City, Jiangsu Province PRC PC214426.
- The production site in Jiangyin City was visited on 18 November 2011 and hand over report stated excellent maturity level of module production
- ACS is a strategic cooperation partner of Hareon and ILB Helios and responsible to audit manufacturing sites and production lines of Hareon and ILB Helios once a year also in China.
- ACS has also been engaged for project evaluation of Hareon PV power plants in Bulgaria for review of the assigned project documents as well as on site inspections

## Allianz Climate Solutions is active in three business lines

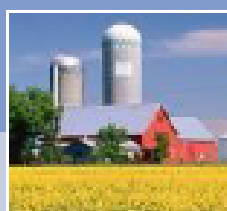
Insurance Solutions	Risk Consulting	Project Procurement
Global insurance solutions for renewable energy projects	Risk analysis for all types of renewable energies	Direct access to solar power projects
<ul style="list-style-type: none"> <li>✓ International insurance programs covering technical, property and casualty insurance for renewable energy projects.</li> <li>✓ Alternative risk transfer and loan protection insurance for renewable energy projects.</li> <li>✓ Innovative, customized insurance solutions for clean technologies, energy efficiency and the carbon market in close cooperation with customers and Allianz Group risk carriers.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Advice on risk-related aspects of renewable energy projects; selecting technologies, analyzing locations, project partners and profitability.</li> <li>✓ Risk analyses for financing renewable energy projects with a focus on technology, regulatory frameworks and profitability.</li> <li>✓ Extensive expertise on legislative and regulatory frameworks for renewable energies in selected European countries.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Project procurement and active support in the execution of project acquisitions.</li> <li>✓ Selection and evaluation of sophisticated, high-quality projects, ensuring an adequate risk/revenue profile and review of profitability calculations.</li> <li>✓ Placement of projects with internal and external investors, creation of project exposés and comprehensive cash flow and pricing models.</li> </ul>

# ACS stands for a broad range of expertise and services

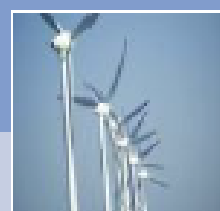
## Our Areas of Expertise:



Photovoltaic



Biomass/  
Biogas



Wind  
Energy



Geothermal  
Energy



Others

## Our Strengths:

Technology, Profitability &  
Regulatory Environment Assessment

## Our Services:

1

Project Assistance &  
Financial Advisory

3

Renewable Energy Rating<sup>1</sup>  
and Industry Reports

2

Project & Risk Assessment

4

Manufacturer Evaluation &  
Bankability Assessments

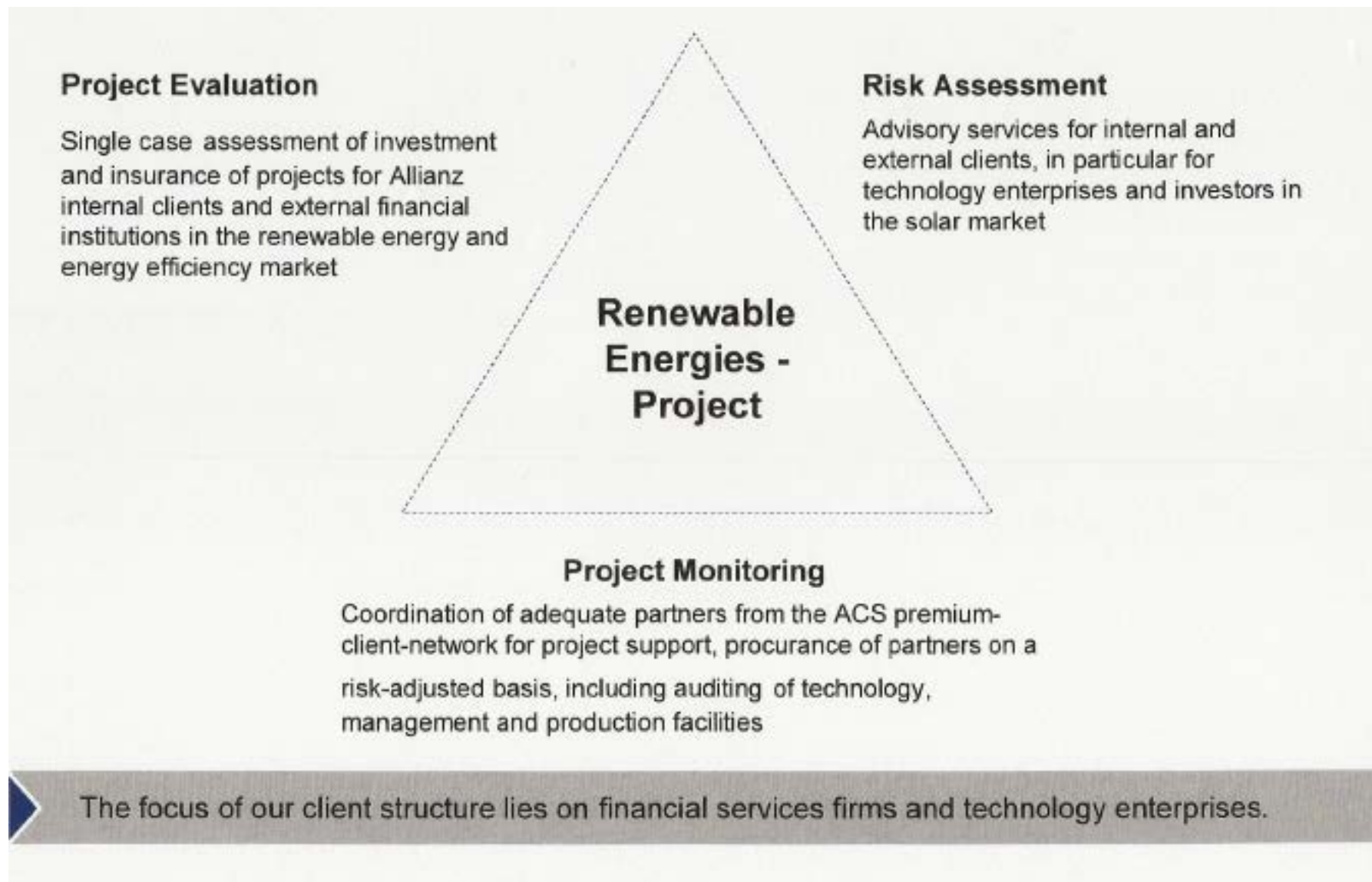
## For one Objective:

### Risk Advisory & Services:

Providing full-service for renewable energy  
projects during planning, construction and operational phase

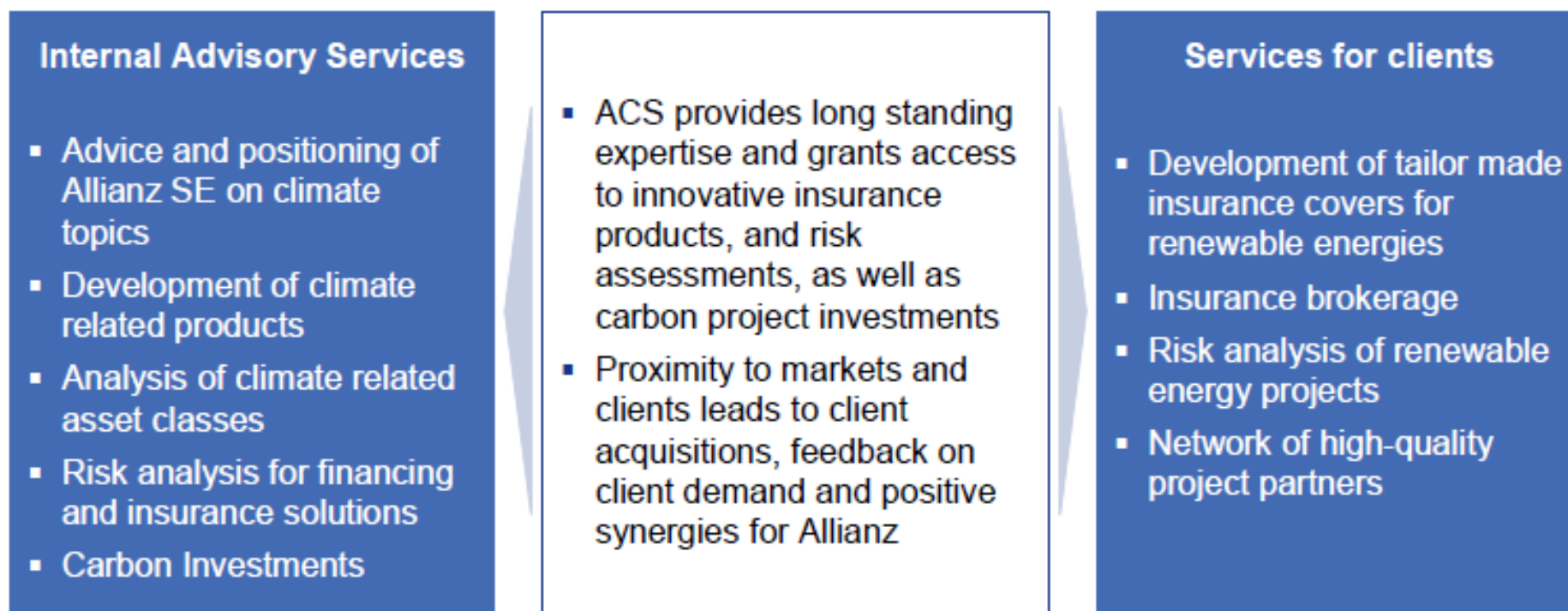
<sup>1</sup> In cooperation with Euler Hermes Rating Deutschland GmbH

# Risk Management is fundamental to the consulting activities of ACS



# Allianz – general information on insurance for PV plants

- ACS is the Allianz advisory unit for internal and external clients in the segments of renewable energies, clean technologies and carbon markets

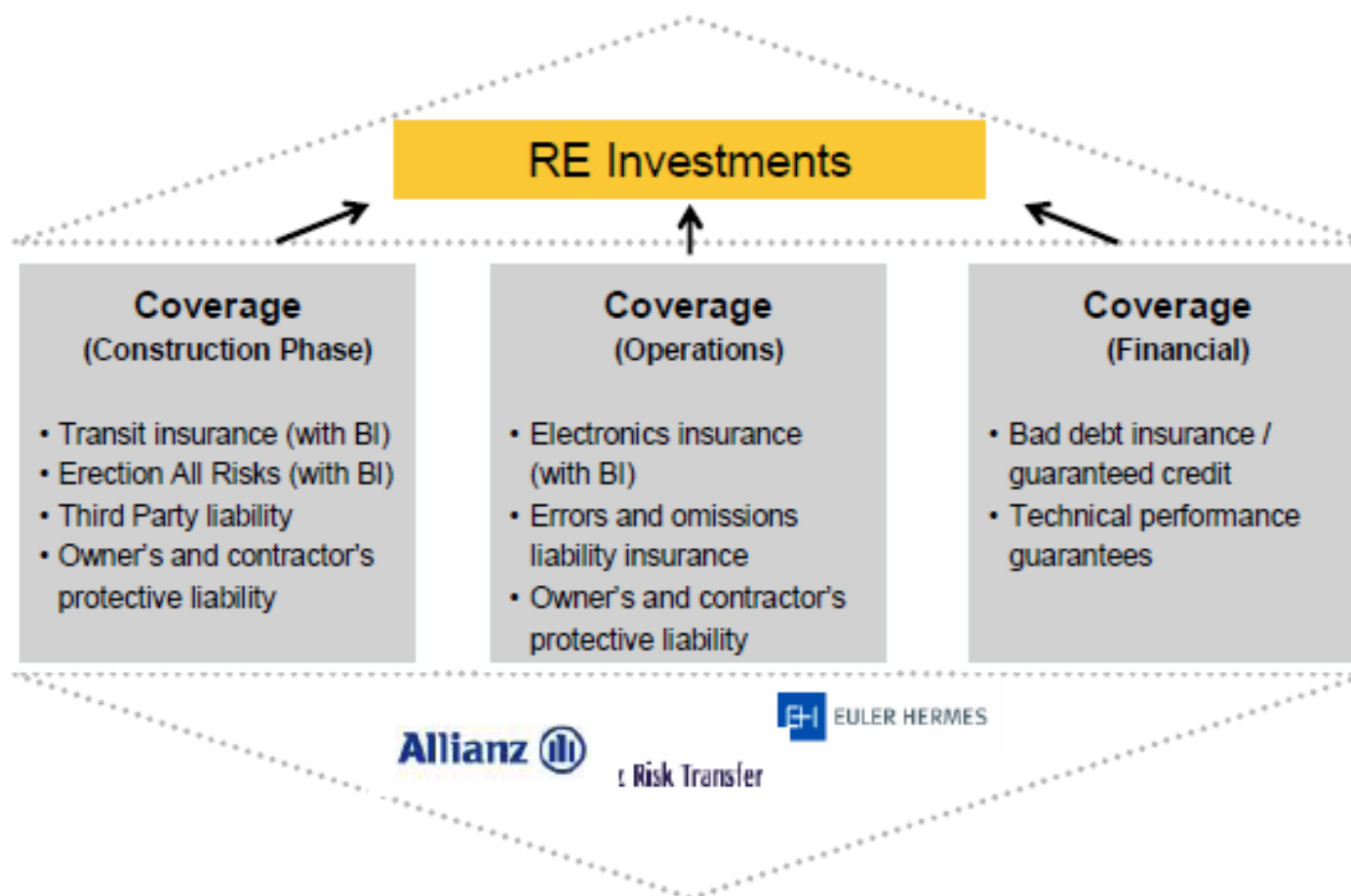


Creation of synergies for clients via access to network and competencies of Allianz



# Allianz – general information on insurance for PV plants

- Individual policy outline for specific customer and project requirements
- Taylor-made international insurance programs for renewable energy projects
- Framework agreements between ACS and local organisation entities of Allianz-Group



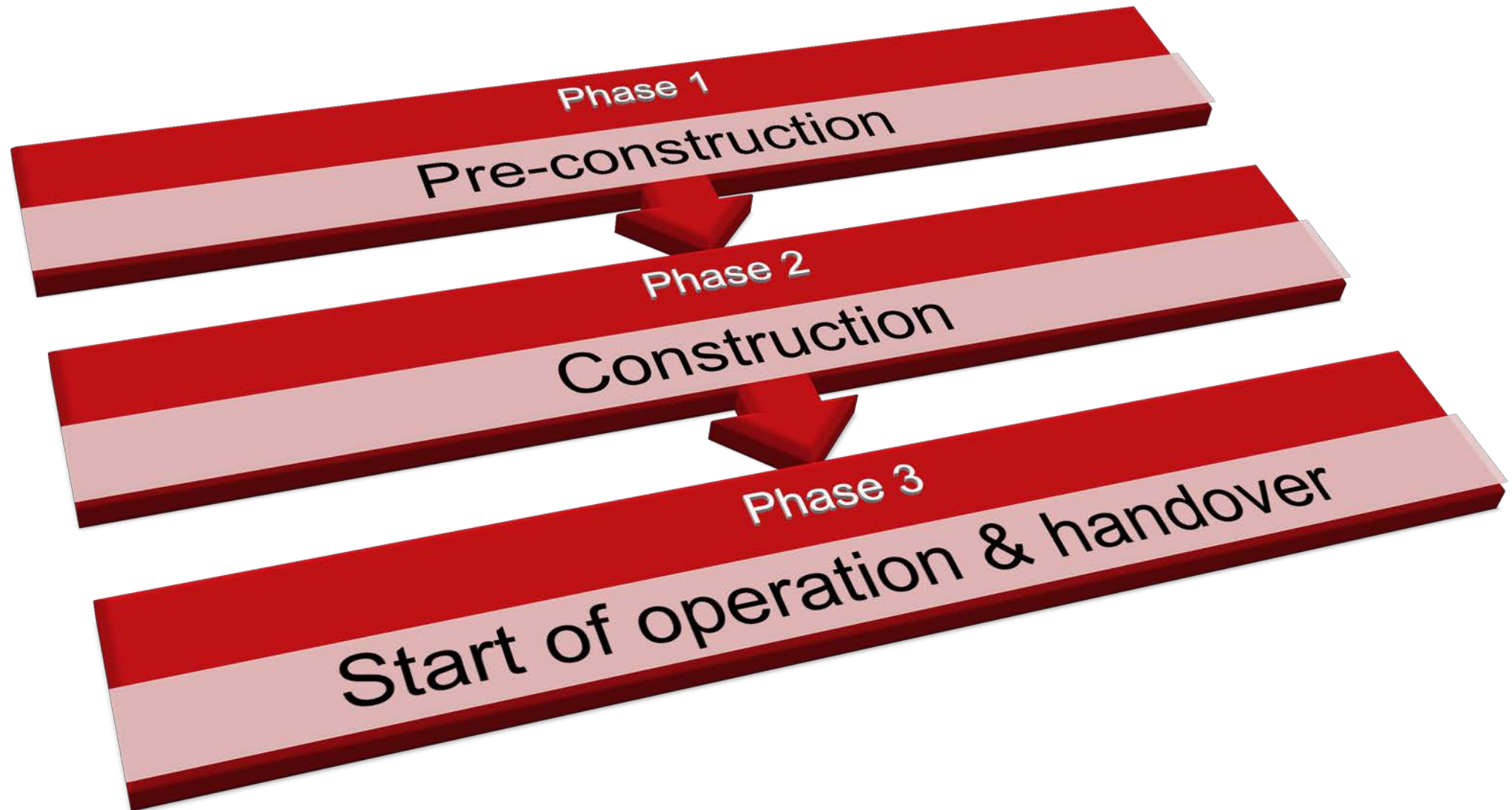
## PART 2: CONSORTIUM FOR PV PROJECTS

- Consortium leader
- Cooperation with Allianz Climate Solutions

### **Realization phases**

- General consortium set up
- Highest quality & performance of PV plants

## 3 phases to ensure project success



## Phase 1 – Pre-construction (main tasks excerpt)

- Establishing of project management structure
- General risk assessment
- Site analysis and ram tests
- Selection of most suitable EPCs, Material suppliers, O&M providers, Insurance providers, Security providers, etc.
- Plant/sub station/grid connection design and optimization
- Project planning and scheduling
- Creation of fully bankable yield assessment reports
- Contract negotiation
- Alignment with local authorities

**Objective:**  
**100% prepared to start construction**

## Phase 2 – Construction (main tasks excerpt)

- On site construction and grid connection acc. to project plans
- Management of deliveries and construction proceeding
- Modules delivered to the sites will be tested at the factory according to a spot sample test plan for each delivery lot incl. EL-tests as well as flash re-tests in order to confirm expected quality levels
- Independent checks of the construction quality in the beginning and at several stages during construction phase
- Continuous alignment with local authorities
- Documentation management acc. to requirements of Renewable Energy laws
- Continuous alignment with the client
- On site security

### **Objective:**

**Construction finalized in time and budget acc. to specifications**

## **Phase 3 – Start of operation & handover (main tasks excerpt)**

- Fine tuning of the PV plants in order to optimize output
- Establishing of O&M team and monitoring systems
- Finalizing of documentation management towards authorities for the operating PV plants
- Final inspection of the plants after grid connection in order to provide a certificate/good standing letter proving the high quality and performance level of the plant
- Providing full handover documentation to the client

### **Objective:**

**Client is owning full operational PV plants exceeding initial expectations**

## PART 2: CONSORTIUM FOR PV PROJECTS

- Consortium leader
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- Realization phases

### **General consortium set up**

- Highest quality & performance of PV plants

## Core technical realization partners

### EPC, Inverter, substation, grid connection



[www.conecon.com](http://www.conecon.com)



[www.abb.com](http://www.abb.com)



[www.sungrowpower.com](http://www.sungrowpower.com)



[www.gdsolar.net](http://www.gdsolar.net)

Further to be defined

### Modules



[www.hareonsolar.com](http://www.hareonsolar.com)

### Mounting structure



[www.mounting-systems.com](http://www.mounting-systems.com)



## Legal & risk advisors / partners



Risk assessment

[www.acs.allianz.com](http://www.acs.allianz.com)



Financial planning

[www.ilb-helios.com](http://www.ilb-helios.com)

TOURISM INNOVATIVE TRENTS



[www.iitt.eu](http://www.iitt.eu)



O&M provider

[www.abb.com](http://www.abb.com)



Dr. Littmann Consulting

Performance reports

[www.littmann-consulting.com](http://www.littmann-consulting.com)



Audit, Legal

[www.bdointernational.com](http://www.bdointernational.com)



International tax advisors

[www.tpa-horwath.com](http://www.tpa-horwath.com)



Legal advisors

[www.schoenherr.eu](http://www.schoenherr.eu)



EULER HERMES

Project rating

[www.eulerhermes.de](http://www.eulerhermes.de)

## Organizational realization partners



Project & contract  
management

[www.ilb-helios.com](http://www.ilb-helios.com)

**TOURISM INNOVATIVE TRENTS**



[www.iitt.eu](http://www.iitt.eu)



PV plant insurance

[www.allianz.com](http://www.allianz.com)



Technical QA and auditor

[www.tuev-sued.de](http://www.tuev-sued.de)

## PART 2: CONSORTIUM FOR PV PROJECTS

- Consortium leader
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**Highest quality & performance of PV plants**

## Highest quality & performance of PV plants – USPs

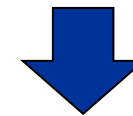
**1) High tech module production**

**2) Optimization of electrical design with ABB and TÜV SÜD**

**3) Best quality materials used**

**4) High performance ratio of the plants up to 85%**

**5) High plant availability**



**6) Very high market value of the plants**

**7) Secure investment with PPA**

# Highest quality & performance of PV plants – details

(1/3)

Realization key facts	Description
Plant design and construction	<ul style="list-style-type: none"> <li>Plant design and construction done by <b>full bankable EPCs</b> with proven track record</li> </ul>
Main electrical design & components	<ul style="list-style-type: none"> <li>Provided by <b>full bankable EPCs</b></li> <li>Design of a high efficient PV power plant</li> <li>Use of low loss transformers</li> <li>Use of double transformers with automatic switch to cut down the lost in low radiation phases (morning and evening)</li> </ul>
High tech module production	<ul style="list-style-type: none"> <li>Provided by <b>ILB/Hareon</b></li> <li><i>Have all TÜV certificates like ISO 9001, 14001, RoHs, PV-Cycle</i></li> <li>Each shipment is certified by Allianz and TÜV Sud</li> <li>Only use of best materials for the modules, only use of 3BB cells</li> <li>H&amp;S Junction box to reduce the heat transfer to the cells and reduction of resistance with Radox cable and H&amp;S connectors</li> <li>100% EL testing</li> <li>100% Impv sorting to reduce mismatch loss below 1%</li> <li>Only plus tolerances 0+5Wp</li> <li>Very low module degradation</li> <li>10 years full guarantee</li> </ul>

## Highest quality & performance of PV plants – details

(2/3)

Realization key facts	Description
Cables	<ul style="list-style-type: none"> <li>Only cables manufactured in Germany to be used</li> </ul>
Mounting racks	<ul style="list-style-type: none"> <li>Mounting racks provided by <b>European suppliers</b> with proven track record</li> </ul>
O&M – Technical	<ul style="list-style-type: none"> <li>Provided by <b>full bankable EPCs</b></li> <li>Full 24/7 coverage of the plant</li> </ul>
O&M – Insurance	<ul style="list-style-type: none"> <li>Insurance during operation phase with <ul style="list-style-type: none"> <li>Section I – Material Damage (MD) Cover: All risk of physical loss and/or material damage to objects/property insured</li> <li>Section II – Business Interruption (BI) Cover: Interruption of the continuous, specific business operations caused by and following an indemnifiable loss or damage under Section I</li> </ul> </li> </ul>

## Highest quality & performance of PV plants – details

(3/3)

Additional control mechanisms	Description
General risk assessment by <b>Allianz Climate Solutions</b>	<ul style="list-style-type: none"> <li>• General assessment on business model, realization structure and partners involved from planning to grid connection</li> <li>• The results of all control mechanisms will be combined by Allianz Climate Solutions in a summary report</li> </ul>
Audit of production facilities for modules by <b>Allianz Climate Solutions</b>	<ul style="list-style-type: none"> <li>• Audits cover full production process and technology used</li> </ul>
Yield optimization and assessment by <b>Dr. Littmann Consulting (DLC)</b>	<ul style="list-style-type: none"> <li>• Optimization of plant design</li> <li>• Yield assessment</li> </ul>
Control of contracts and construction quality by <b>TÜV SÜD</b>	<ul style="list-style-type: none"> <li>• Review of technical parts of contracts and equipment used for project realization</li> <li>• Independent checks of the construction quality in the beginning and at several stages during construction phase</li> <li>• Yield assessment</li> </ul>
Final inspection and certification of the PV plants by <b>TÜV SÜD</b>	<ul style="list-style-type: none"> <li>• Final inspection of the plants after grid connection in order to provide a certificate/good standing letter proving the high quality and performance level of the plant</li> </ul>
Spot sample test of modules by <b>TÜV SÜD</b>	<ul style="list-style-type: none"> <li>• Modules delivered to the sites will be tested according to a spot sample test plan for each delivery lot</li> <li>• EL-tests as well as flash re-tests in order to confirm expected quality levels</li> </ul>

## ALLIANZ CLIMATE SOLUTIONS – some details on their involvement

- Allianz Climate Solutions (ACS) serves as a center of competence for climate change with a focus on renewable energy. ACS offers insurance services and advisory services on financing issues for renewable energy projects to both external clients and Allianz entities. Furthermore, ACS is responsible for climate related strategy development of Allianz and serves as catalyst for green product development.
- ACS acts as a:
  - Broker for insurance solutions for several renewable energy technologies
  - Advisor, evaluator and supporter for renewable energy projects
  - Developer of strategies and Green Products, as well as an advisor on all topics related to climate change
  - An incubator for Allianz initiatives and projects related to climate change



## TÜV SÜD – some details on their involvement

- The TÜV SÜD Industry Service is both authorized (by the German government) and Notified Body for the European Community. A worldwide network of authorities, industry leaders and research and technology institutions assures state of the art and up to date expertise and know how.
- As one of the world's leading providers of consulting, testing and certification services, TÜV SÜD has the required know-how and experience to make innovative technologies safe, reliable and cost-efficient.
- The following scope of work has been defined with TÜV SÜD
  - Site Assessment
  - Yield Study calculation in PVSYST software.
  - Feasibility Study
  - Review of Contracts (EPC and O&M) with focus on technically aspects.
  - Construction Monitoring
  - Performance Assessment Tests and Final Acceptance Test
  - Pre-Shipment Inspection

## EULER HERMES (optional) – some details on their involvement

- Euler Hermes is the world's leading provider of trade-related insurance solutions incl. project ratings, helping companies of all sizes trade with confidence at home or abroad.
- With over 100 years of experience, and backed by Allianz, one of the world's leading financial services providers, Euler Hermes expertise has earned the trust of its clients globally, not just by what they say, but by what they do.
- Our trade-related insurance solutions include:
  - Credit insurance
  - International Debt Collection
  - Bonding
- Euler Hermes is well known for its clear and reputable project ratings which are granted by following a 5 step process
  - Step 1 – Analysis of business as well of financial model
  - Step 2 – Analysis of risk aspects
  - Step 3 – Modeling of project returns/benefits as well of uncertainty parameters
  - Step 4 – Report on probability of default and rating of the project
  - Step 5 – Analysis of default scenarios and repatriation analysis

# AGENDA

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**PART 4: THE REALIZATION OF A LARGE SCALE PV PROJECT**



### Brief Introduction

Beijing JINGCHENG New Energy Co., Ltd. (hereinafter referred to JCNE), which belongs to Beijing JINGCHENG Machinery Electric Holding Co., Ltd., is a new energy enterprise mainly engaged in the investment, construction, and operation of wind farms as well as in the design and manufacture of wind power generation units and relative key components.

By reconstituting the business, assets, organization and personnel of Wind power branch company and Large electric motor division of Beijing BEIZHONG Steam Turbine Generator Co., Ltd., JCNE was founded in Aug. 2010 with registered capital of RMB 624 million, invested by Beijing JINGCHENG Machinery Electric Holding Co., Ltd., Beijing BEIZHONG Steam Turbine Generator Co., Ltd. and Beijing Heavy Electric Machinery Works.

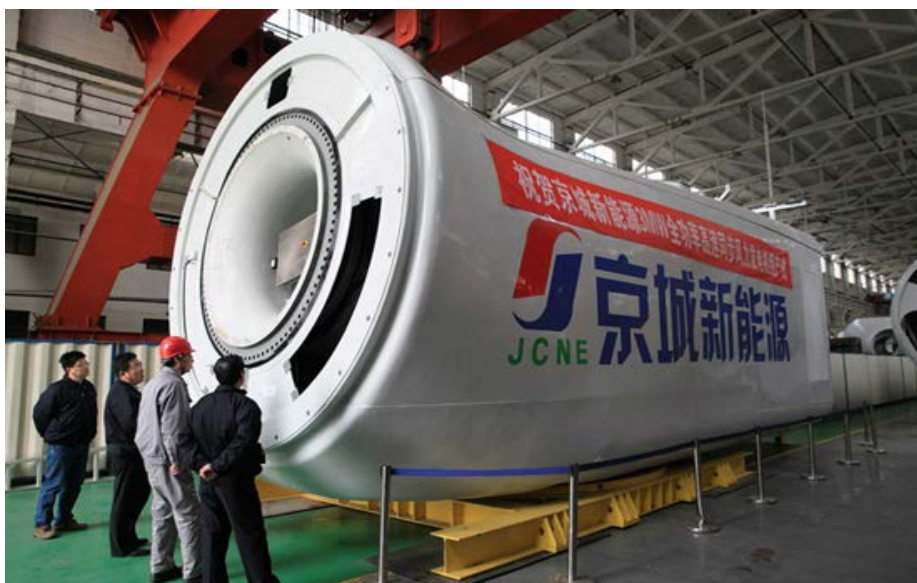
JCNE is a leading enterprise manufacturing large wind power generation equipment and electric motors in China. The company owns the first-class product design and manufacturing technology, complete production facilities, excellent qualified personnel and testing ability for full-load test of wind power generation unit synchronizing with grid. JCNE has built the production base to manufacture wind power generation units and main components in the area of rich wind resources, and has ability to achieve an annual production capacity of 2000MW of wind power generation units, in addition, 2000MW doubly-fed asynchronous wind generators, large and medium-sized motors.

JCNE has produced 1.5MW and 2MW wind power generation units in the product series by way of introducing the advanced technology and independent innovation. JCNE is now co-developing 3MW onland and offshore wind power generation units and 5MW offshore wind power generation units. Up to now, more than 100 wind power generation units of 2MW and 1.5MW rating are running very well in four wind farms in Inner Mongolia.

JCNE owns the intellectual property rights of doubly-fed asynchronous generators of 2MW air-cooling type as well as 1.5MW both air-cooling and water air-cooling type. JCNE has more than 50 years' experience in design and manufacture of large and medium-sized electric motor (including increased safety explosion-proof motor).

JCNE adheres to the core value of "Expert in technique and management, Sincere in credit and cooperation" and commits to "clean, high efficiency and excellent manufacture" as our mission. Relying on superiority of rich and high quality wind resources, 50 years' manufacturing experience in electric power equipment and its own capital strength together with investment and financing of the fraternal enterprise – Beijing JINGCHENG Financing Lease Co., LTD. JCNE has established a new business model, i.e. "Combine production with financing, Drive two wheels for developing", which will push JCNE to grow up as the most competitive domestic new energy enterprise in developing the wind power generation and in manufacturing the wind power generation equipment.

## 1.5 – 3 MW Wind power generator set







We have produced the steam turbine generators since 1958. The complete set of steam turbine, generator and associated accessories is normally supplied to our customers. Up to Sept. 2009 our company has been contracted to supply 454 units of steam turbine generators with a total capacity of 47621 MW, including 80 units of 300-360 MW with capacity of 26400 MW. A number of units have been exported to other countries as India, Indonesia, Vietnam, etc. . The performance of steam turbine generators in operation are highly praised by our vast end users. Our steam turbine or generator can be separately ordered and well matched with the machines from other manufacturers according to customers' requirements.

As regard to the wind power generating equipment, up to now 75 sets of 2 MW capacity are in commercial operation on the vast land of Inner Mongolia in China. All of them have successfully stood severe tests of ultra-low temperature, sand blown by fierce wind, thundering and lightening. The stable performance of our wind power generating equipment has been fully approved by our customers. By the end of year 2009, another 24 sets will be put into operation.

We have more than 50 years' of experience in producing large and medium size electric motors. Starting from the synchronous motors with many styles of different voltages, constructions, protections, ventilation and excitation we provide our customers quite a number of possibilities for selection. Afterwards we actively developed in design and production of asynchronous motors as well as explosion-proof motors. Up to Sept. 2009 we have supplied 21952 motors above-mentioned with total capacity of 10520 MW. They are now extensively used in the coal mines, oil refineries, petroleum chemical, metallurgical and textile industries.



## 主要产品分布 Distribution of Main Products





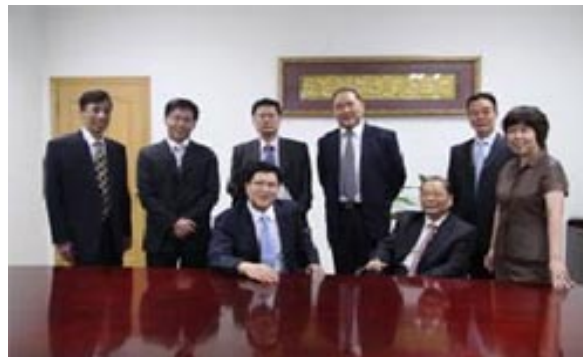
Beijing Beikai Electric Co., Ltd. (BBE) is one of China's most influential suppliers of electric power switches and maintaining a leading position, it has always been working for researching and producing high-, medium- and low-voltage switching equipment, devices of mechanical & electric, on-line intelligent monitoring products, automatic distribution network system and other associated products.

In 2003, the company has moved to the BDA of Beijing Daxing, covered an area of 110 hundred square meters, and located the sales company in CBD commercial area. The company now boasts a staff team of over 1200, among which 500 are technicians, with total assets near one trillion RMB.

BBE insists on implementing the managerial philosophy of “99+‘1’=0”, Beikai brand products enjoy high reputation both in domestic and international market.

The products are widely used in the field of suburban and urban electrical networks, petrochemical industry, steel and iron industry, shipping industry, nuclear power, environment protection, railway and national defense.

Mission of BBE: integrating modern technique and effective management, and creating a perfect system in of power transmission and distribution.





## ILB JV with JCMEH



## Beijing Jingcheng Machinery Electric Holding Co.,Ltd.(The Main Share-Holder)

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Beijing Jingcheng Machinery Electric Holding Co.,Ltd.(referred as ' JCH' )is a large size enterprise engaged in state-owned assets management under the authorization of Beijing Municipal Government with registered capital of 1.3billion RMB and total assets of 15 billion RMB.

JCH has been striving for being the flagship in Chinese equipment-building industry and has formed the key industrial structure in printing machinery,CNC machine tool,construction machinery,environmental protection equipment and complete equipment for power generation,transmission and distribution,all of which is in the leading position in China.Up to now,JCH has built up its business relationship in more than 70 countries and regions and established long-term and steady partnership of joint venture with many famous international enterprises,such as ABB,ALSTOM,B & W, OKUMA, NISSIN, HYUNDAI, TADANO and etc.

Based on the view of maximum of the share-holders' profits and the principle of honesty and credit,JCH has been actively taking part in the competition in the international market and wishes to create a brilliant future in equipment-building industry together with the partners from worldwide industrial sector.

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# AGENDA

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**PART 1: ILB HELIOS AG**

**PART 2: CONSORTIUM FOR PV PROJECTS**

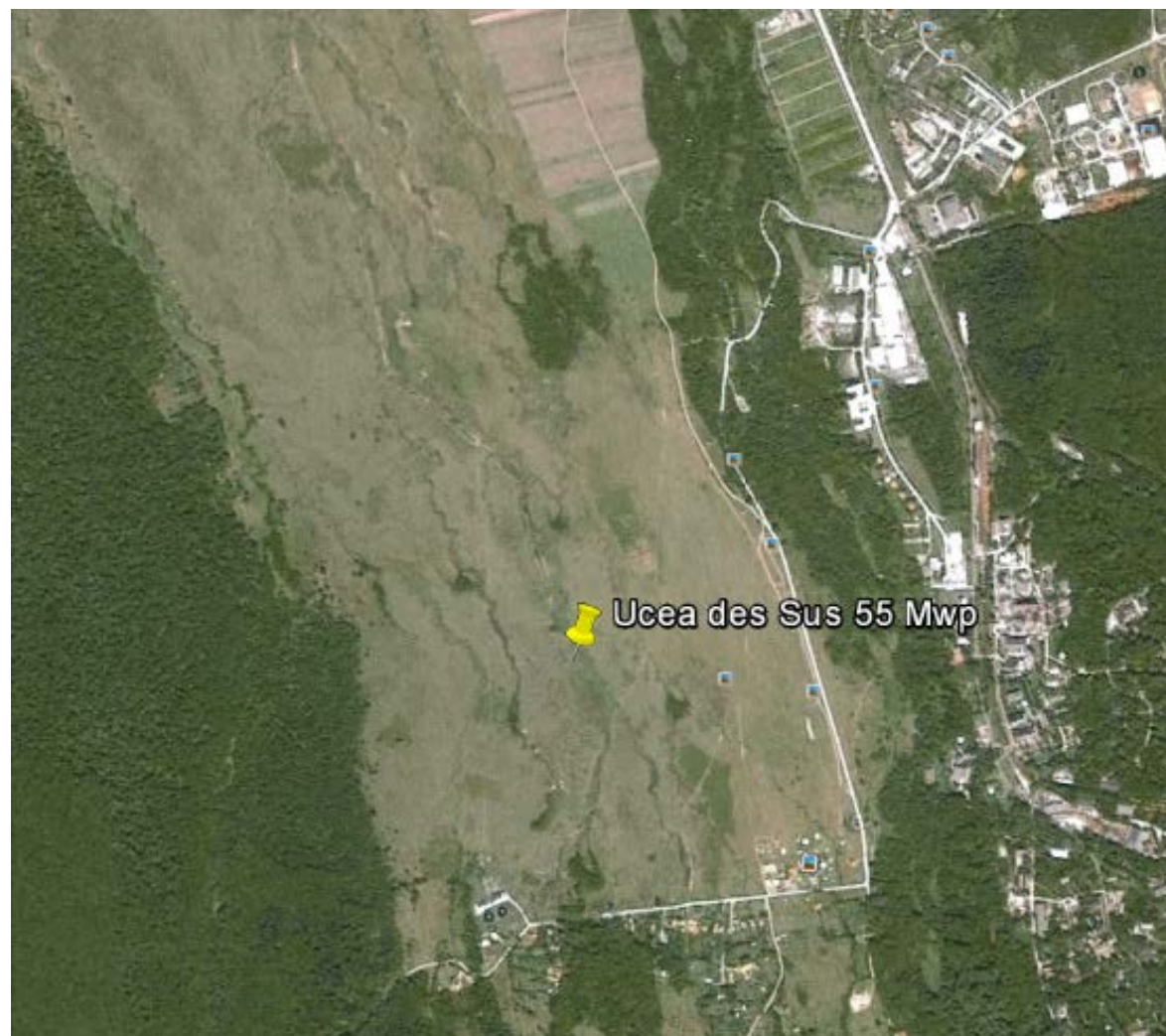
**PART 3: FURTHER ILB HELIOS CONSORTIUM MEMBERS**

**PART 4: THE REALIZATION OF A LARGE SCALE PV PROJECT**



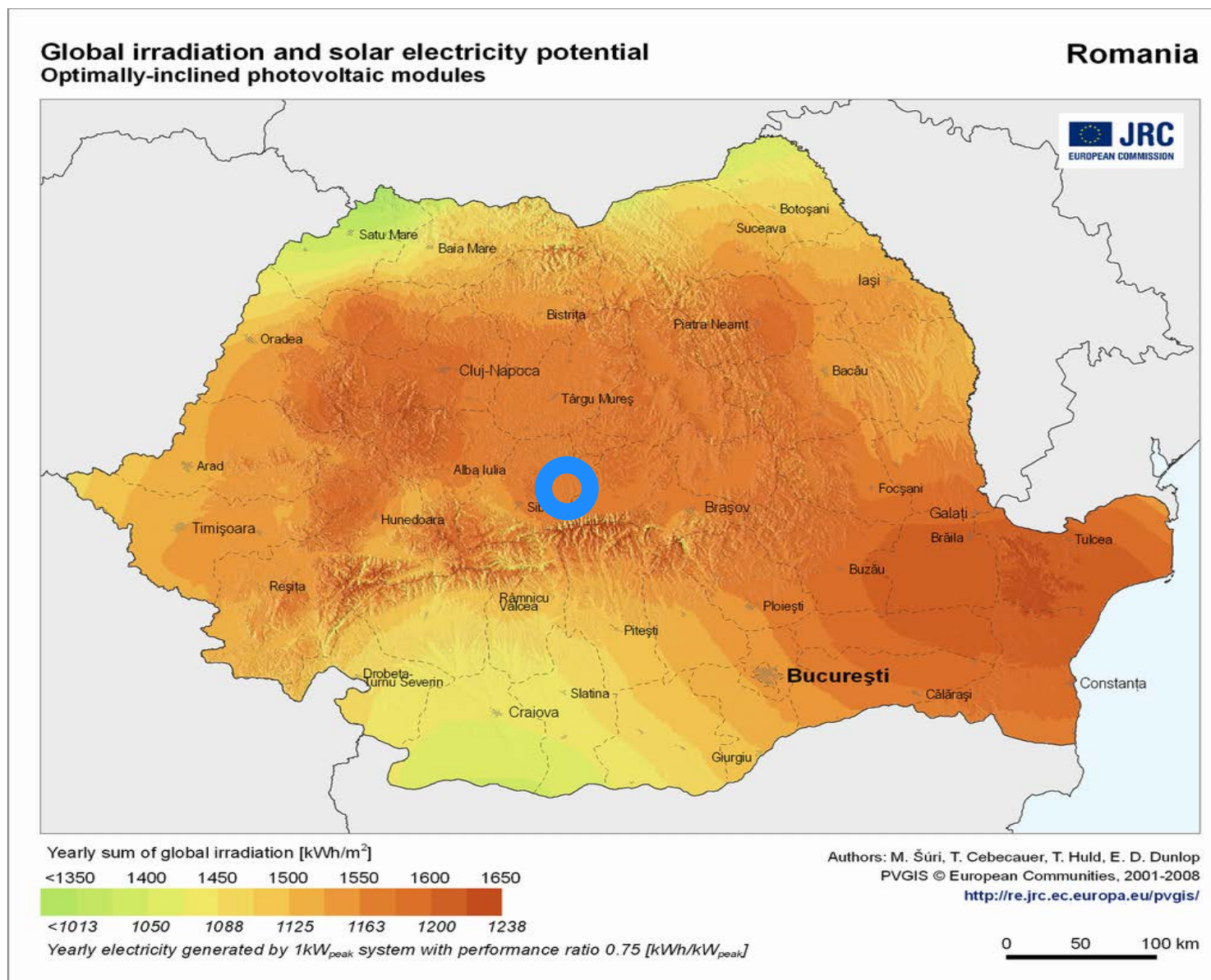
## PART 3 – THE REALIZATION OF A LARGE SCALE PROJECT

**Ucea de Sus – 54,99 MWp**



# Location & irradiation

Ucea de Sus  
54,99 MWp





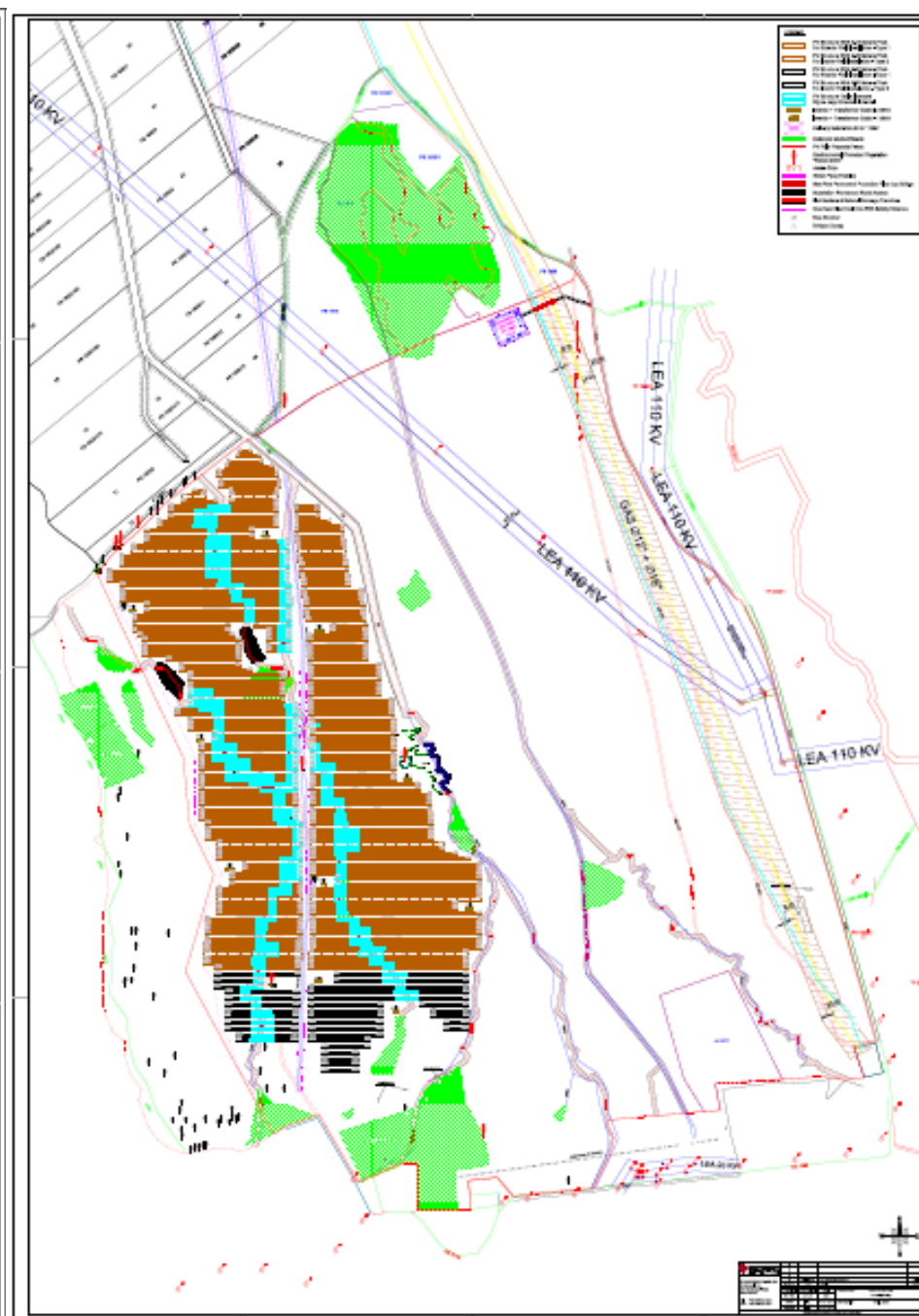
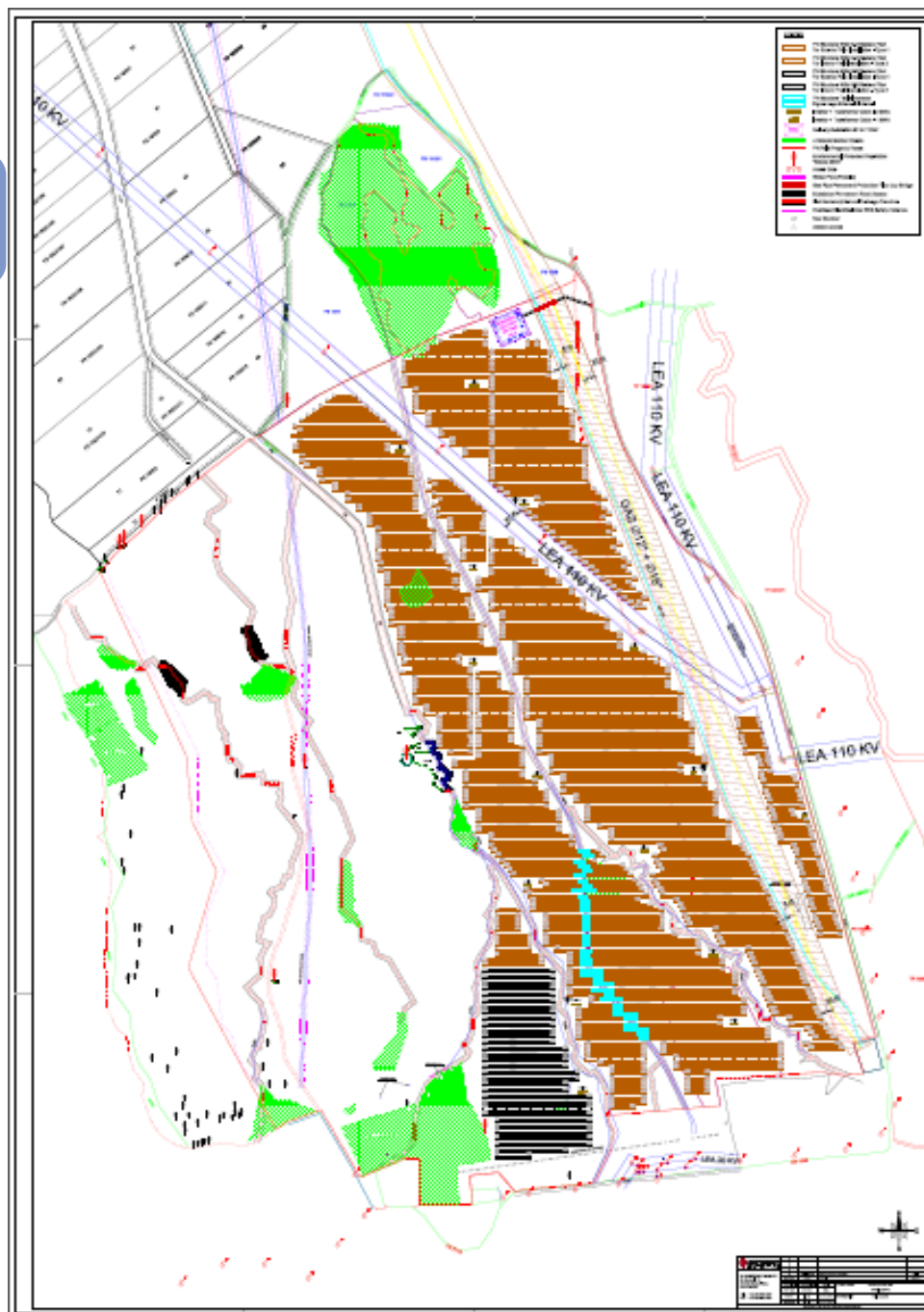
## Project key data

Ucea de Sus  
54,99 MWp

Key data	Key data information
Region	Transilvania Romania)
Town area	Ucea de Sus
Google Earth coordinates	45° 42'17.97"N; 24° 41'28.40"E
Project size (total)	54,99 MWp
Project size (single plants)	2 plants with 33,47 MWp and 21,52 MWp
Type of PV plant	ground mounted
Land size	140 ha
Distance to grid connection point	Project substation on the plot, grid connection at Electrica substation 3 km
Utility provider	Electrica Distributie Transilvania Sud
Start of Construction	April 2013
Finalization of Construction	October 2013

# Technical design of PV plants 1 and 2

Ucea de Sus  
54,99 MWp

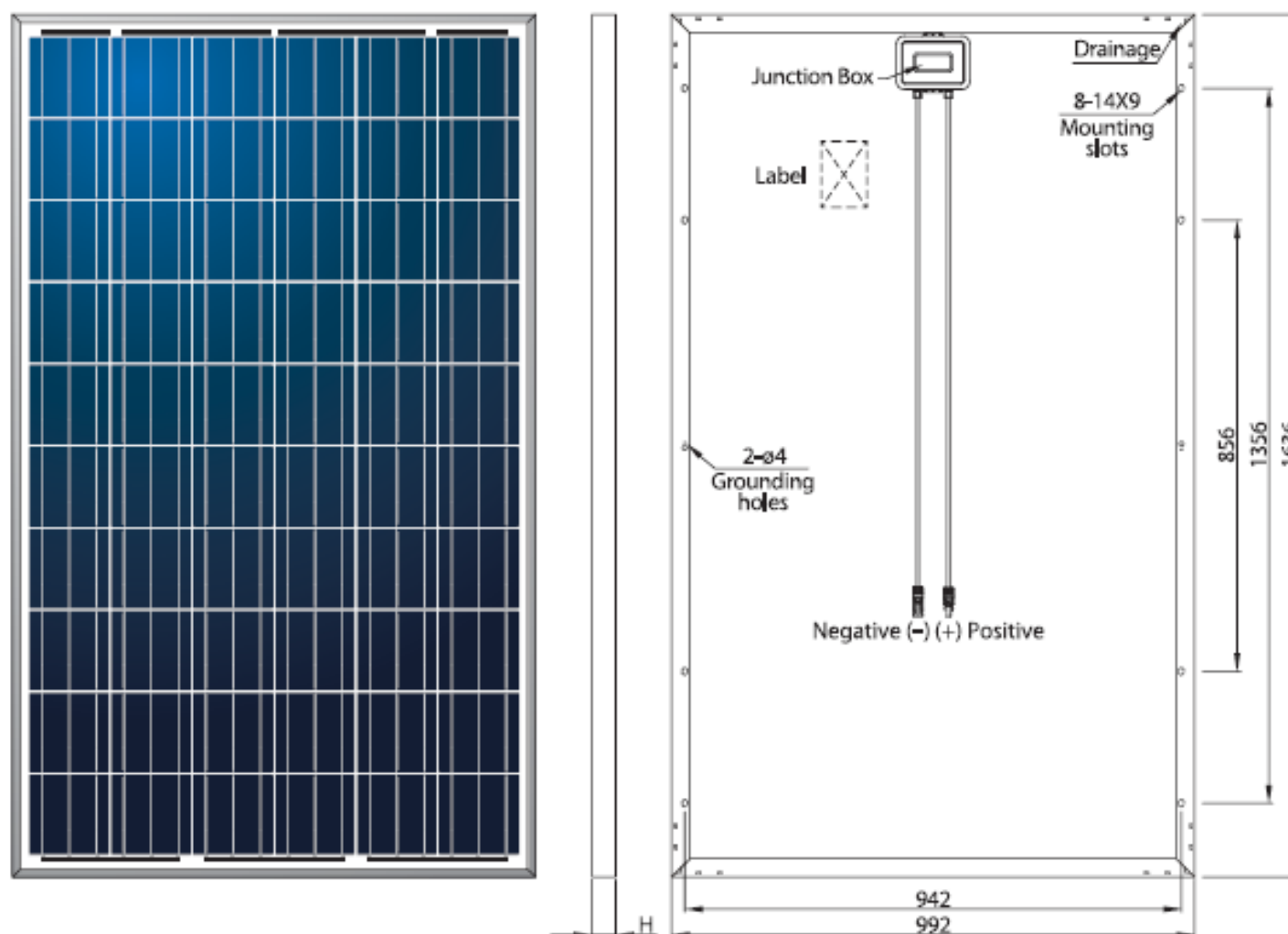


# Overview of used main products

Ucea de Sus  
54,99 MWp

## MODULES (poly)

HAREON 3BB HR-240P-18/Bb – HR-260P-18/Bb



# Overview of used main products

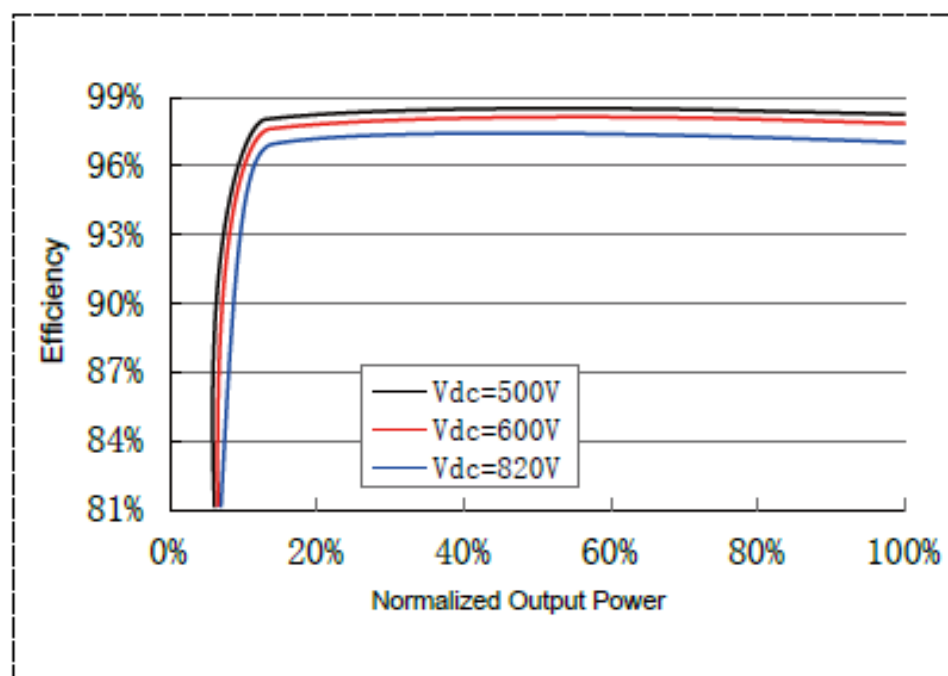
Ucea de Sus  
54,99 MWp

## INVERTERS SunGrow SG500MX



**SG 500MX**

### Efficiency Curve

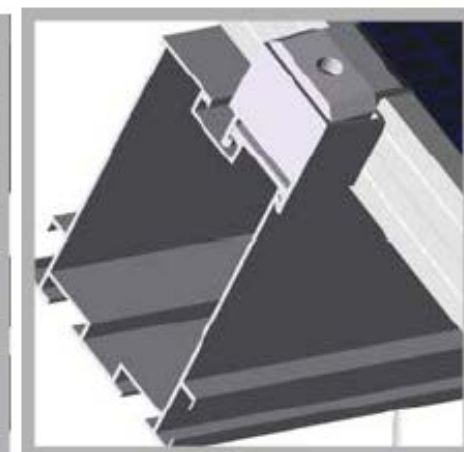
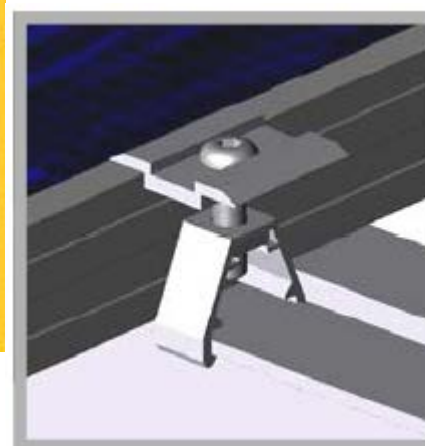
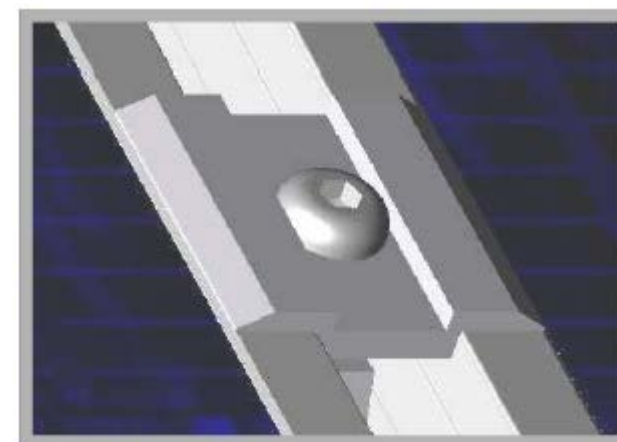


# Overview of used main products

Ucea de Sus  
54,99 MWp

## MOUNTING STRUCTURE

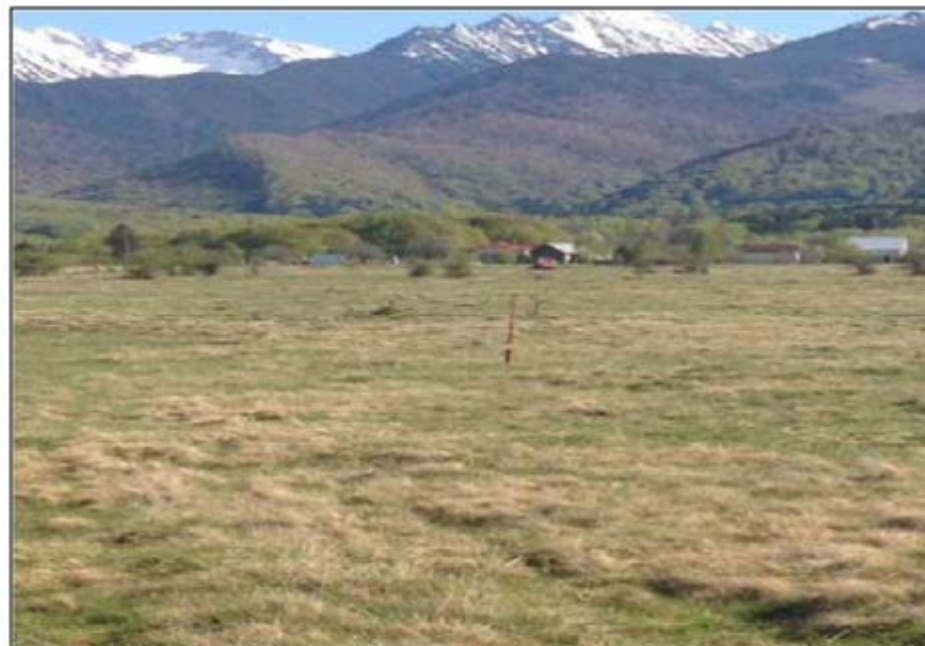
Mounting Systems X row landscape system





# Construction proceeding – week 01

Ucea de Sus  
54,99 MWp





## Construction proceeding – week 03

Ucea de Sus  
54,99 MWp





# Construction proceeding – week 05

Ucea de Sus  
54,99 MWp

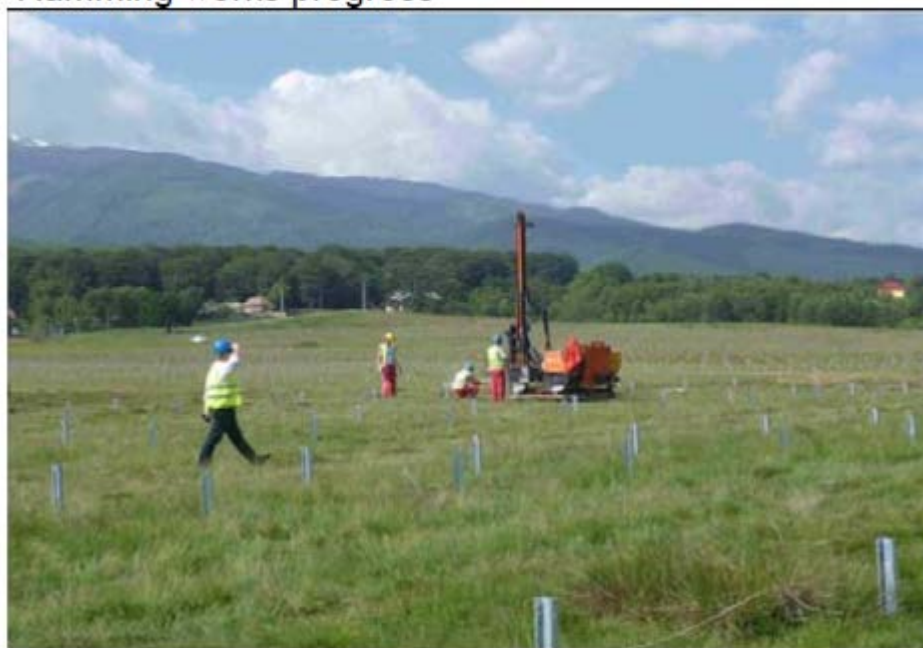
Protection of the gas pipes and bridges



Substation works



Ramming works progress



Trenching works





# Construction proceeding – week 07

Fence installation works



Trenches and Ducting



Ucea de Sus  
54,99 MWp





# Construction proceeding – week 09

Ramming the water tables



Pulling String cable



Pulling Dc cable



Ucea de  
54,99 MW



# Construction proceeding – week 11

Assembly AL structure Park I



Ucea de Sus  
54,99 MWp

Fence installation





# Construction proceeding – week 13

Ucea de Sus  
54,99 MWp



MV cabling



String cable Pulling





# Construction proceeding – week 15 (1/2)

Combiner Boxes cabling



Installation of diagonal and lateral protection for modules



Ucea de Sus  
54,99 MWp

Positioning of PV Boxes



# Construction proceeding – week 15 (2/2)

Ucea de Sus  
54,99 MWp

South Park I. General View





# Construction proceeding – week 17

Foundations for the Cameras



Modules installation



Ucea de Sus  
54,99 MWp

Fastening string wire





# Construction proceeding – week 19

Cabling PV Boxes

Ucea de Sus  
54,99 MWp



Module Scanning

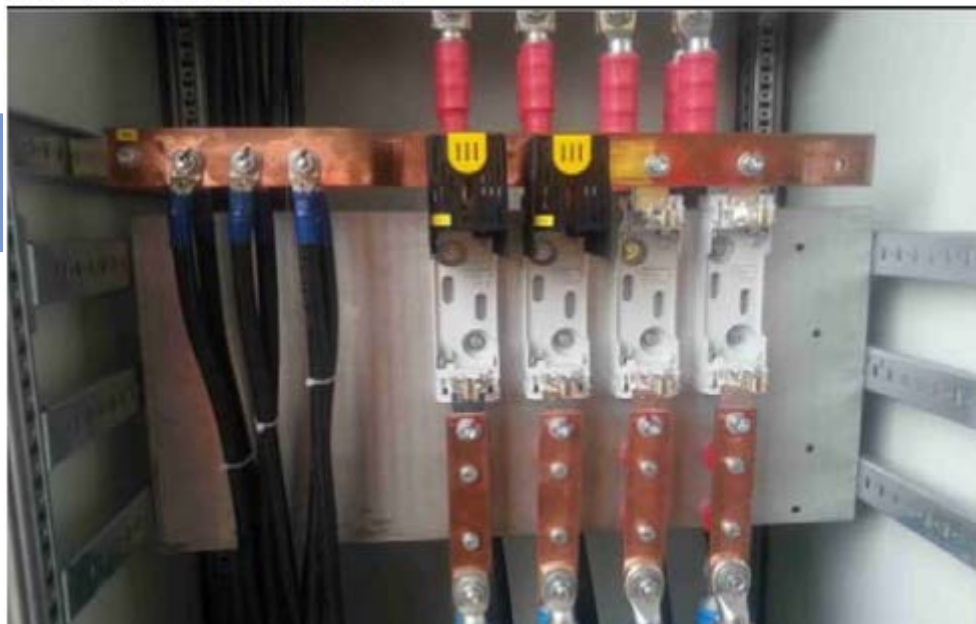




# Construction proceeding – week 21

(1/2)

DC Panels connection

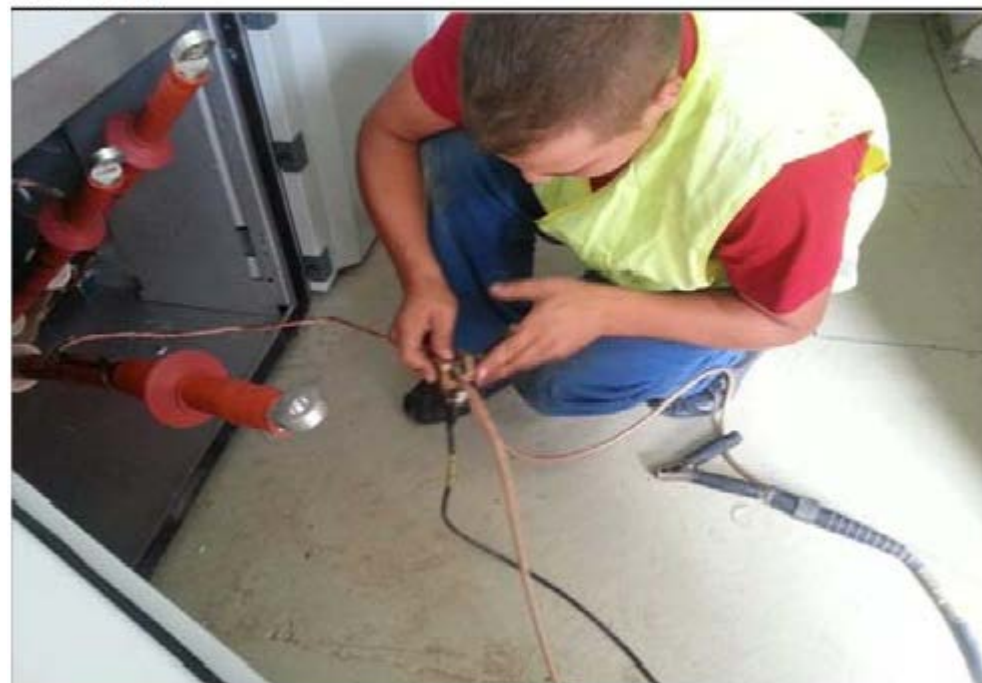


Waterproofing the cable after connection



Ucea de Sus  
54,99 MWp

MV test



Cleaning and tidy up the field



## Construction proceeding – week 21 (2/2)

Ucea de Sus  
54,99 MWp





# Construction proceeding – week 23 (1/3)

Sidewalks around the cabins

Ucea de Sus  
54,99 MWp





## Construction proceeding – week 23 (2/3)

Ucea de Sus  
54,99 MWp





## Construction proceeding – week 23 (3/3)

Ucea de Sus  
54,99 MWp





## Contact

**Günther Stonig**  
CEO

*Mobile: +41 (795) 707688*  
*[guenther.stonig@bluewin.ch](mailto:guenther.stonig@bluewin.ch)*

**ILB HELIOS AG**  
Chamerstrasse 175  
CH-6300 Zug  
Switzerland



## **CONTACT**

**Antoaneta Alexandrova**  
**President**

**Mobile: +359 887381680**  
**a.lilova@iitt.eu**  
**www.iitt.eu**