

Design Plus Build Co., Ltd.



Design + **B**uild **S**olar

Consultancy - Engineering - Project Management

About Us



Design Plus Build Co., Ltd. (D+B), the German-Thai company based in Bangkok, established in 2005, has executed projects in South East Asia with strong technical know-how in the solar PV Business and has been recognized by major clients in the region such as Malaysia, Philippines and Thailand.

D+B provides consultancy and engineering services performing Facility Study, Conceptual Design, Detailed Design, Design Review, Project Management, Project Supervision and Inspection services.



Technical Due Diligence for Solar Plants



Our services during the Pre-Concept stage of the project include Technical Due Diligence to support owners, lenders and investors in their project decision making process and during acquisitions.

Being the consultant for investors in Thailand, Malaysia and Philippines. We have gained valuable experience in evaluating a wide range of projects covering all technical aspects.

From site assessment in flood prone areas to energy yield calculations and plant operation, we step in with our knowledge and experience.



Technical Due Diligence for Solar Plants

- Project site assessment
- Permitting and licenses analysis
- Grid connection study
- Local code compliance
- Environmental impact study
- Energy output assessment
- Risk assessment
- Review of certificate documents of main equipment



Project Development

- Conceptual & detailed engineering works
- Contractor and supplier evaluation
- Bidding document preparation
- Commercial agreements and contract review including:
 - Scope of work compliance
 - System warranties and performance guarantees
 - Project securities and penalties
- Capital expenditures (CAPEX) for entire project
- Operational expenditures (OPEX) post hand-over



Project Management

Performing construction management requires working with all parties to help develop the project and deliver the project on- time and within the quality standards set forth in the contract. Payment schedules and assess work completion versus agreed contractual obligations is required to be reviewed.



- Establish project controls manual
- Design reviews
- Monitor and coordinate contractor's activities
- Report work quality and progress
- Review QA/QC procedures and approve
- Coordinate and participate in project meetings
- Testing and commissioning
- Appropriate lender's reporting content
- Project budget disbursement planning
- Payment approvals

Solar Performance Testing for Final Acceptance

Design Plus Build Co., Ltd. is offering third-party final acceptance testing services to ensure that solar plants meet all specifications in terms of design, standards, regulations and performance.

From installation inspection, electrical measurements to final acceptance tests to meet the requirements for grid synchronization our services can include:



- Code compliance verification
- Assistance in commissioning
- Plant performance tests including yield assessment and system losses analysis
- Inspection of facility for final acceptance
- Witnessing of commissioning
- Permitting documentation review

Maintenance Service

Design Plus Build Co., Ltd. is offering comprehensive inspection services to support the operation and maintenance of PV plants to ensure the economic viability of your PV plant throughout the lifespan.

- Establish plant maintenance program
- Thermography photo analysis
- Visual inspection and performance evaluation of individual system components
- Inspection and repair of mechanical structures
- Inspection of functional efficiency on all electrical components such as inverter, cables, distribution boxes, safety devices.
- Compilation of inspection reports



Scope of Services – Solar Power Plant

Pre-Concept Phase

- Feasibility Assessment
- Technical Due Diligence
- Financial Due Diligence Support
- Energy Output Assessment
- Site Assessment
- Owner's Consultant

Project Development

- Design Verification
- Vendor Assessment
- Supplier Audits
- Tender Development
- Contractor Selection
- Contract Preparation
- Owner's Representative

Construction

- Manufacturing Inspection
- Pre-Shipment Inspection
- Construction Design Approval
- QA/QC Management & Inspection
- Vendor Technical Audits
- Construction Supervision
- Expediting
- Site Acceptance Testing
- PV Component Testing
- Owner's Representative

Commissioning & Project Hand-Over

- Planning of Commissioning Phase
- Witness of Equipment Commissioning
- Plant Grid Synchronization
- Final Acceptance Testing
- String Testing
- Construction Conformity Assessment
- Energy Output Calculation
- Performance Ratio Calculation

Operation

- Functional & Safety Tests
- Condition Monitoring
- End-of-Warranty Inspection
- Performance Verification
- Failure Analysis

D+B Project References

Solar Power Plant



Customer Reference



Bangchak



Asian Development Bank



Solenergy



nv vogt
nv vogt Philippines Solar Energy



โรงงานยาสูบ
กระทรวงการคลัง
Thai Tobacco Monopol



Solar Planet



Clean Tech Global Renewables



Rojana Energy



PETRONAS
Petroleum National Berhad
Petronas Berhad



SYMBIOR SOLAR
Symbior Solar



Design Plus Build Co.,Ltd.



Project Reference



- Client: Asia Development Bank
- Industry: Finance and Banking
- Project: Poly-Crystalline Rooftop
110 kW @ 270 kph
- Location: ADB, Philippine, 3rd Atrium
- Period: Nov. 2011- Feb. 2012
- Service: Design Review, Commissioning
Quality Management

Project Reference



Client: Thai Tobacco Monopol

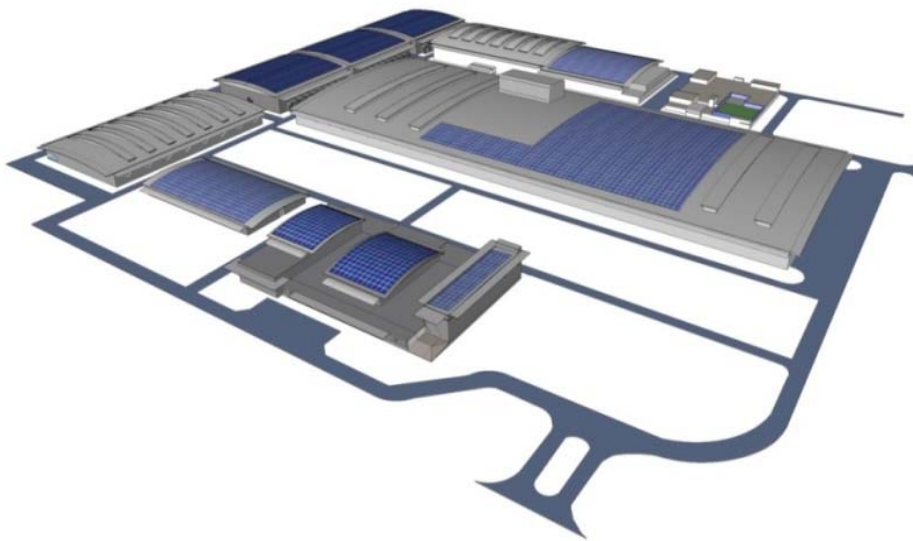
Industry: Tobacco

Project: TTM New Factory Solar Rooftop 8.53 MW(DC)

Location: Ayutthaya, Thailand

Period: Jul. 2013 – Oct. 2013

Service: Feasibility Study and Detailed Design





Project Reference



- Client: Rojana Energy
- Industry: Power Generation
- Project: Multi-Crystalline Solarfarm
3 sites each 8.0 MW(AC)
- Location: Ayutthaya, Thailand
- Period: Oct. 2012 – Mar. 2014
- Service: Feasibility Study, Concept
Design & Tendering,
Project Management



Project Reference



Client: Solar Planet

Industry: Power Generation

Project: Meakong Technology,
1.2 MW (DC)

Pattana Solar Thermal,
1.2 MW (DC)

Location: Bungkan, Thailand

Period: Dec. 2013 – Jan. 2014

Service: Construction Conformity,
Assessment, Energy Output
Calculation



Project Reference



Client: Asia Development Bank

Industry: Finance and Banking

Project: Poly-Crystalline Solarfarm
Rooftop 570 kW

Location: Manila, Philippines

Period: May. 2012 – Dec. 2012

Service: Detailed Design, Commissioning
Quality Management

Project Reference



Client: Petronas

Industry: Oil & Gas

Project: Thin Film (a-Si, CIS)
Poly-Crystalline Solarfarm 25
MW(AC)

Location: Malaysia

Period: Feb. 2011 – Apr. 2011

Service: Feasibility Study Report, Grid
Study, EIA, Conceptual Design,
Tendering



Project Reference



Client: Bangchak Petroleum

Industry: Solar Power Plant

Project: C-Si Solar Power Plant 44 MW (DC)

Location: Thailand

Period: Oct. 2010 – Nov. 2011

Service: Concept Design, Detailed Design, Project Management

Remarks: 198 acre of land developed including landfill and dykes



Project Reference



Client: Symbior Solar

Industry: Power Generation

Project: Poly –Crystalline Solar Power Plant 3 sites each 19 MW(DC)

Cadmium telluride (CdTe) Solar Power Plant 2 sites each 10 MW(DC)

Location: Prachinburi, Thailand

Period: Mar. 2015 – Apr. 2016

Service: Conceptual Design, Tendering and Project Management





Project Reference



- Client: Solnergy
- Industry: Power Generation
- Project: Poly –Crystalline Solar Power Plant 2 MW(DC)
- Location: Thailand
- Period: Aug. 2015 – Mar. 2016
- Service: Conceptual Design, Tendering Project Management



Project Reference



Client: nv vogt Philippines

Industry: Power Generation

Project: Poly –Crystalline Solarfarm
7.5 MW(DC)

Location: Tarlac, Philippines

Period: Feb. 2016 – Aug. 2016

Service: Design Review, Site Supervision,
Project Close-Out



Project Reference



Client: Bulacan Solar Energy

Industry: Power Generation

Project: Poly –Crystalline Solarfarm
15 MW(DC)

Location: Bulacan , Philippines

Period: Dec. 2015 – Aug. 2016

Service: Quality Management



Project Reference



Client: nv vogt Philippines

Industry: Power Generation

Project: Poly –Crystalline Solarfarm
9 MW(DC)

Location: Tarlac, Philippines

Period: Feb. 2016 – Apr. 2016

Service: Design Review, Site Supervision,
Project Close-Out

Customer's Testimony



บริษัท โรจนะ เอ็นเนอร์จี้ จำกัด
ROJANA ENERGY CO., LTD.

2034/115 ชั้น 26 อาคารอิตัลไทย ทาวเวอร์ ถนนเพชรบุรีตัดใหม่ แขวงบางกะปิ เขตห้วยขวาง กรุงเทพฯ 10310
26th Floor Italthai Tower, 2034/115 New Petchburi Road, Bangkok, Huaykwang, Bangkok 10310 Thailand
Tel: +66 (0) 2716 1750-7 Fax: +66 (0) 2716 1758-9

May 14, 2014

**Subject: Testimony: Design Plus Build Co., Ltd.
Rojana Solar Farm Project, 3x8 MW**

To Whom It May Concern:

Please find this document as my testimony for Design Plus Build Co., Ltd. who has been working as an Engineering and Project Management Consultant with our company for more than 3 years.

Rojana Energy Company Limited began working with Design Plus Build, Co. Ltd. (D+B) in 2011 to perform the design for our 3 solar power plants of 8.0 MW(AC) each, for which we had obtained licenses from the Thai government.

After award of the EPC contract we did sign the contract for Project Management Consultant Services with D+B. The services included engineering services, review, site and commissioning supervision of the Project. Rojana Energy Company Limited is the owner of this project with the project being located within the Rojana Industrial Park in Ayutthaya, Thailand.

It has been a pleasure for us to do business with D+B. We have been impressed with the professional project management consultant services your company has offered us. We are very satisfied with the project and all the relevant services associated with it.

Design Plus Build Co., Ltd. services and their overall commitment have lead to an efficient and successful project for us.

Thank you,

Mr. Thor Ramstetter
Project Manager

Rojana Energy Company Limited



TrelleborgVibracoustic (Thailand) Limited
Eastern Seaboard Hemaraj Rayong Estate 700/5 Moo 7, Kaokansong, Sriracha Chonburi

25. March 2015

**Testimony: Design Plus Build Co., Ltd.
TrelleborgVibracoustic Factory Project, Rayong, Thailand**

To Whom It May Concern:

Our Partner Design Plus Build Co., Ltd. has facilitated the implementation of TrelleborgVibracoustic's first production facility in Thailand through exceptional leadership during design and project management. Our Partner has been our primary owner's representative in designing the facility and as project manager and was responsible for detailed design, tendering, construction and procurement. Our Partner created an environment of trust and confidence with TrelleborgVibracoustic, meeting the anticipated milestones and quality of works. There is no doubt that their participation in the process saved us time and money.

It has been a pleasure for us to do business with D+B. We are very satisfied with the project and all the relevant services associated with it.

Thank you!

Dr. Matthias Sckuhr
President APAC

TrelleborgVibracoustic (Thailand) Limited
Eastern Seaboard Hemaraj Rayong Estate
700/5 Moo 7, Kaokansong, Sriracha, Chonburi Province 20110
www.tbvc.com

Management BIO's



Juergen Kaltenbach
Managing Director

Juergen Kaltenbach has been consultant and project manager to new factory projects in the semiconductor-, pharmaceutical-, food-, and photovoltaic industry working with industry leading German companies for more than 20 years, with over 15 years based in SEA.

His works prior to establishing Design Plus Build company include facilities and hook-up design, project management and being managing director for an international design and construction firm.

Bringing in the facilities design expertise and factory design standards from the semiconductor industry, he established himself in the photovoltaic industry as a leading consultant in module, solarcell and power plant business with projects executed in Asia, Australia, Africa, Europe and the USA.



Thank You



Design Plus Build Co.,Ltd.

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