



GERMAN ASEAN
P O W E R

COMPANY PRESENTATION
&
COMMERCIAL ROOFTOP SOLAR

CHALLENGES FOR THE COMMERCIAL ELECTRICITY CONSUMER IN ASEAN



- Increasing Cost for Electricity
- Insufficient Power Supply & Power Shortages

BENEFITS OF SOLAR POWER



Cost Savings & Price Stability

- ✓ Immediate and future cost savings especially during peak-load tariffs (day-time)
- ✓ No own investment / funding necessary – 100% Financing by German ASEAN Power



Power Supply Security

- ✓ Independent power supply
- ✓ Risk of black- / brownouts during daytime minimized
- ✓ Long-term electricity price stability through long-term agreement with GA Power



CO2 Savings

- ✓ CO2 savings of 17.4 million t per 1 MW over 30 years
- ✓ Green power supply and improvement of corporate social responsibility
- ✓ Carbon Credits

SOLAR SOLUTIONS FOR COMMERCIAL CUSTOMERS

WE HELP YOU FOCUS ON YOUR CORE BUSINESS ...



... WHILE REDUCING YOUR ELECTRICITY BILL WITH SUSTAINABLE SOLAR POWER SUPPLY

Ground-Mounted Commercial Solar Power Plants



Roof-Top Commercial Solar Power Plants



What we do after you contact us:

- We analyze your solar electricity demand
- We prepare a technical solution according to your needs & location
- We offer you a turnkey power plants for own investment or long-term solar power supply contract with lower tariffs than you pay now

ABOUT US

GERMAN JOINT VENTURE WITH FOCUS ON ASEAN



EXPERIENCED GERMAN SOLAR JOINT VENTURE FOR RELIABLE SOLAR POWER FOR ASEAN OFF-TAKERS

GA POWER PTE. LTD.

Singapore

Managing Directors:

Roland Quast, Moritz Sticher, Gerald Freymann



HABDANK Group

Göppingen, Germany and Heppenheim, Germany

Managing Directors: Peter Habdank, Martin Habdank, Oliver Matthes,
Marc Weißmüller, Gerald Freymann



Key Company Information:

- Privately funded ASEAN Joint Venture Organization between German Management Team and German Habdank Group
- Extensive Track-Record in Solar (Development, EPC, O&M, etc.)
- Experience in Europe, Thailand, Malaysia, Korea, India, etc.
- HQ in Singapore, Offices in Thailand
- Specialized in low-cost solar power plant development in ASEAN



Key Company Information:

- Privately owned group for 90 years; since 2004 in construction of solar power plants (Europe, North & South America, Asia)
- Specialized in Solar Power Turnkey Construction (EPC) and O&M
- 1.3+ GWp installed Solar Power (Mounting Systems, Installation Services and Turnkey Construction)
- Certified according to DIN EN ISO 9001

EXPERIENCED GERMAN SOLAR JOINT VENTURE FOR RELIABLE SOLAR POWER FOR ASEAN OFF-TAKERS



Solar Power Plant Development, Planning & Engineering:

German Management Team with more than > 200 MW of developed solar power plants in Europe and Asia. GA Power has its HQ in Singapore and currently operations in Thailand, Vietnam, Philippines and Cambodia.



- Reliable business partnerships with local stakeholders in ASEAN
- Local organization and know-how transfer
- Reliable project development & financing

Construction (EPC) and Maintenance (O&M):

Leading solar technology companies with more than > 1,300 MW of constructed solar power plants globally:



- High-Quality Tier-1 Components / State-of-the-Art Technology
- Market-leading Warranties
- Feedback Control Systems to Support Grid Stability

MANAGEMENT TEAM

OUTSTANDING INDUSTRY EXPERIENCE & PROVEN TRACK-RECORD



OUR STORY: BUILDING SOLAR BUSINESSES SINCE 2004

	Moritz Sticher Managing Director MBA Int'l Mgt., MSc Engineering (Photonics)	Roland Quast Managing Director MBA Int'l Mgt., MSc Finance	Gerald Freymann Managing Director MSc Engineering for Energy Techn. & Mgt.	
	Executive / Co-Founder / Shareholder of	Executive / Co-Founder / Shareholder of	Executive / Co-Founder / Shareholder of	
2010	<ul style="list-style-type: none"> PV Module Manufacturing Solar Power Development 	2005	<ul style="list-style-type: none"> \$ 750 Mill. in Solar Invest. PE, Government Funding 	
2011	<ul style="list-style-type: none"> Solar Power Development EPC (India, El Salvador) 	2008	<ul style="list-style-type: none"> PV Module Manufacturing Solar Power Development 	
2013	<ul style="list-style-type: none"> Solar Power Development Thailand 	2010	<ul style="list-style-type: none"> Solar Power Development Germany, Thailand 	
2014	<ul style="list-style-type: none"> Solar Power Development Thailand 	2014	<ul style="list-style-type: none"> Solar Power Development Thailand 	
			2004	<ul style="list-style-type: none"> EPC Solar Power Plants Germany, Spain Head of Construction Dep.
			2009	<ul style="list-style-type: none"> EPC Solar Power Plants Europe, North America, Asia Head of Construction / O&M
			2015	<ul style="list-style-type: none"> Solar Power Development EPC Solar Power Plants Int'l



TECHNICAL CAPABILITIES

100% OF SOLAR POWER PLANT DEVELOPMENT, ENGINEERING & CONSTRUCTION IN-HOUSE



THE MOST RELIABLE SOLAR CONSORTIUMS ACTIVE IN ASEAN – PROJECT COMPLETION: 100 % BEFORE DEADLINE!

PV-PROJECTS



Project Development



Engineering



Procurement

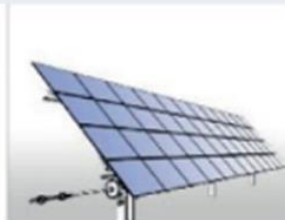


Construction / Installation services

PV-SYSTEMS



Ground mount systems



Tracking systems

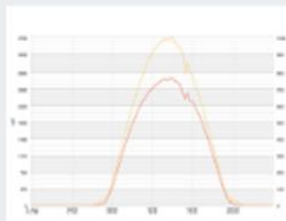


Solar carport systems



Rooftop systems

PV-SERVICES



Operation & Maintenance



Supply of spare parts



Retrofitting



Repowering

STATE-OF-THE-ART TECHNOLOGY

- High-Quality Tier-1 Components (e.g. SMA Inverters, REC Modules, Habdank PV-Mounting Systems, etc.)
- Feedback Control Systems to Support Grid Stability & Integration of Battery Charge Controller System for Future Battery Back-Up

IN-HOUSE COMPETENCIES

- In-house Planning & Statics, Engineering
- Civil Works, Mechanical and Electrical Installation of Solar Power Plant
- Construction, Project and Site Management
- Long-term Solar Power Plant Operation & Maintenance

LOW-COST SOLAR POWER

Providing Cost-Competitive Solar Power to Utilities and Commercial & Industrial Customers in the ASEAN Region from State-of-the-Art Solar Power Plants



OUR ADVANTAGES

GERMAN QUALITY & RELIABILITY



INVESTMENT CAPABILITIES

- Solar Power Plant Development & Financing
- Solar Power Plant Engineering & Construction
- Solar Power Plant Long-Term Operation

- External Equity Financing Capabilities > EUR 500 Mill.
- Debt Financing with German Development Banks & International Financing Institutions

OUR EXPERIENCE & TRACK-RECORD WE BRING TO ASEAN MARKETS

More than 10 years of global experience in all relevant areas of PV solar power



DEVELOPMENT
> 150 MW

CONSTRUCTION
> 1,300 MW

OPERATIONS & MAINT.



LIST OF REFERENCES

PROJECT DEVELOPMENT - EXCERPT ONLY

UTILITY-SCALE PV POWER PLANTS IN EUROPE, CENTRAL AMERICA & ASIA (> 150 MW)

Project	Location	Year	kWp	Invest. (TEUR)
Goodman Malsch	Germany	2012/2013	1,400	1,800
Goodman Hannover	Germany	2011/2012	1,000	1,400
Roitzsch	Germany	2012/2013	4,200	5,800
Storkow	Germany	2012/2013	8,000	8,100
SuCo Portfolio	Germany	2013/2014	9,000	13,500
Ammerland	Germany	2011	21,000	42,000
ThaiGerSol	Thailand	2015/2016	20,000	40,000
Kameno	Bulgaria	2011/2012	12,000	3,000
Schwedt	Germany	2012	2,982	5,400
Bremen	Germany	2011/2012	962	1,900
Hassendorf	Germany	2011/2012	4,212	7,800
Kameno Innovation	Bulgaria	2011/2012	2,150	4,400
Löberitz	Germany	2012	920	1,288
Lichtenau	Germany	2012	1,100	1,540
Grupo Borja	El Salvador	2013/2014	10,000	14,000
Banaras Beads	India	2013	181	277
Dessau	Germany	2010	750	2,500



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION



KOENIGSBRONN, GERMANY – 10 MW

Location	Koenigsbronn, Germany
Capacity	10 MW
Scope	Turnkey EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning, delivery and installation of mounting system• Mechanical and electrical installation of modules and inverters• DC- und AC-cabling• Civil works• Project and site management



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION

BANWELL, UK – 7.2 MW

Location	Banwell, UK
Capacity	10 MW
Scope	Turnkey EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning, delivery and installation of mounting system• Mechanical and electrical installation of modules and inverters• DC- und AC-cabling• Civil works• Project and site management



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION



FRANCE – PORTFOLIO 110 MW

Location	France
Capacity	110 MW
Scope	EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system• Foundation and installation of mounting system• Mechanical installation of modules• Project and site management
Highlights	<ul style="list-style-type: none">• Order entry in March 2014• Start of deliveries and construction in April 2014• End of construction in September 2014• 1 site manager / 6 supervisors / 145 installers



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION

MEURO, GERMANY – 34.2 MW

Location	Meuro / Schipkau, Germany
Capacity	34.2 MW
Scope	EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system• Foundation and installation of mounting system• Mechanical installation of modules• Project and site management
Highlights	<ul style="list-style-type: none">• Largest open area photovoltaic plant in Germany on old mining area



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION



AMMERLAND, GERMANY – 20.8 MW

Location	Ammerland, Germany
Capacity	20.8 MW
Scope	EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system• Foundation and installation of mounting system• Mechanical installation of modules• Project and site management
Highlights	<ul style="list-style-type: none">• Mounting system and 196,000 thin-film modules installed in only 8.5 weeks



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION



HJORTMOSE, DENMARK – 17.3 MW

Location	Hjortmose, Denmark
Capacity	17.3 MW
Scope	EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system• Installation of mounting system• Mechanical installation of modules• Project and site management
Highlights	<ul style="list-style-type: none">• Combined solar park and wind farm



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION

BUDUR, TURKEY – 8.3 MW

Location	Budur, Turkey
Capacity	8.3 MW
Scope	EPC
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system• Foundation and installation of mounting system• Mechanical installation of modules• Project and site management
Highlights	<ul style="list-style-type: none">• One of the largest open area photovoltaic plants in Turkey



EXCERPT OF REFERENCES

HABDANK - CONSTRUCTION

OITA-HITA, JAPAN – 1 MW

Location	Oita-Hita, Japan
Capacity	1 MW
Scope	PV-Mounting System
Services	<ul style="list-style-type: none">• Structural calculation• Planning and delivery of mounting system
Highlights	<ul style="list-style-type: none">• Concrete foundation



CONTACT INFORMATION



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