



Rooftop Solar Business in Vietnam

SHIRE OAK INTERNATIONAL





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ABOUT SHIRE OAK INTERNATIONAL

Our History & Founder

Shire Oak International is a leading developer and financier of large-scale renewable energy projects in developing countries and emerging economies. Our core mission is to be a global pathfinder in devising, implementing and spreading renewable energy solutions to drive transformational change in the rate of adoption of renewable energy in the developing world.

Our founder and team members have backed some of the biggest projects in Europe, including the biggest solar plant in the UK and the world's first 320MW tidal lagoon at Swansea Bay. To date, we have developed over 33 solar farms independently, while we have put teams on the ground to develop projects in Zimbabwe, Uganda, Colombia and Iraq.

Currently we bring the expertise and experience we have gained operating in the renewable energy market to booming Asian economies. Our mission is to lead the roll-out of solar energy across the region, which is perfectly suited to adopt and expand this world leading technology.

Renewable Energy Business

Shire Oak International is striving to drive the global transition to renewable energy – essential to the preservation of our natural world and global economy. We aim to unlock over 12GW of global solar energy capacity, US \$13 billion in capital, and offset 20 megatons of Co2 every year by 2030. In the developing world, Shire Oak International is trying to answer two specific problems: a lack of renewable energy developers and the high cost of capital for renewable energy projects.

The below map shows the location of many of the sites that the SOI team has designed and delivered in the UK, totalling a combined capacity of 365MW. We provide details of a few of these projects on the following pages. Information on other projects mentioned below is available upon request.



UK solar PV sites developed by the SOI team

Projects in Europe

Swansea Bay Tidal Lagoon



Masterplan

Wall length: 9.5km

Area: 11.5km²

Installed capacity: 320MW

Daily generating time: 14 hours

Annual output: up to 570GWh

Annual CO₂ savings: 156,000 t

Operational life: 120 yrs

Height of wall: 5 – 20m

Wall above low water: 12m (max)

Wall above high water: 3.5m (max)

Tidal range Neaps: 4.1m

Tidal range Springs: 8.5m

Status

DCO granted: June 2015

Estimated time for all planning conditions to be discharged: May 2020

Material start on site: June 2020

Electricity Supply:

155,000 homes powered

~90% of Swansea Bay's domestic use

~11% of Wales' domestic use



Value of the potential domestic market for turbines and generators

The UK's natural resource and coastal conditions offer a significant potential domestic market for tidal lagoon turbines and generators. The value of this market is estimated in the table below.

	Installed capacity	Estimated number of turbines and generators required	Investment
Swansea Bay	320	16	£360m
Cardiff	3,240MW	108	£2.9bn
TLP fleet of 5 projects, plus pathfinder	16,000MW	604	£15.2bn
UK market of 9 projects, plus pathfinder	25,000MW	940	£23.0bn



Westmill

Location: Oxfordshire

Commissioned: 2011

Capacity: 5MW

Role: Design, acquisition, site management, build management, delivery & commissioning.

Comments: The Westmill site is particularly rich in biodiversity and wildflowers. On its construction it was the first community owned solar farm in the world and it remains the largest. See: https://en.wikipedia.org/wiki/Westmill_Solar_Co-operative



Membury

Location: Berkshire

Commissioned: 2015

Capacity: 16MW

Role: Design, acquisition, site management

Comments: This site is in the locality of an ancient monument, has a public right of way along its western boundary and is in the centre of a designated area of outstanding natural beauty. High voltage underground electrical assets cross the site and active runways bisect it from SE to NW, and along the eastern boundary. The site was previously a WW2 airstrip, so small arms munitions and larger unexploded ordinance surveys had to be conducted prior to build.

The site is also close to the M4 motorway, a major road network in the UK. All of these factors would normally prevent development of a solar site, but with careful design and build considerations all issues were mitigated, freeing up new areas for the deployment of solar PV.





Spittleborough

Location:	Wiltshire
Commissioned:	2014
Capacity:	9MW
Role:	Design, acquisition, site management
Comments:	This site crossed numerous high-pressure assets, requiring unique bridging solutions. It also abutted the M4 motorway and featured areas of ecological and archaeological interest. Again, we were able to overcome these issues to construct a 9MW solar site to service the local community.



SHIRE OAK IN VIETNAM

Introduction

In Vietnam, Shire Oak International is developing a broad portfolio of solar energy projects across the country to meet the fast-growing demand of its emerging economy. Working with corporates and educational establishments across the region, we are currently deploying circa US \$90 million of equity funding to build out 360MW of Vietnamese rooftop solar installations under 15 to 20-year lease and Power Purchase Agreement (PPA) models. We have exclusivity agreements with three of the leading rooftop solar installation companies in Vietnam and have secured a significant pre-qualified pipeline of opportunities.

Shire Oak International's operations have several benefits for Vietnam and its economy. Channeling foreign direct investment, we use only local contractors to install and service our solar systems which supports businesses and communities in the country. From a fiscal perspective, the adoption of solar energy will also lower the cost of electricity in Vietnam, helping to boost the country's competitiveness for the export market. Moreover, through training and development of our staff, we hope to play a role in positioning Vietnam as a world leader in solar energy.

On 24 June 2020, during his visit to Shire Oak International in Ho Chi Minh city, British Ambassador in Vietnam, Gareth Ward, acknowledged the country's progress so far: "Vietnam is poised to be a leader of the sustainable energy transition in South East Asia. The UK, especially UK businesses in Vietnam like Shire Oak International, is committed to supporting Vietnam in addressing climate change and reaching its green energy targets."

Meet The Senior Team



Mark Shorrock, Founder and Chief Executive Officer

Mark has consented over USD \$2.35 billion of renewable energy projects. He was a pioneer in the UK wind and solar sectors through his businesses Wind Energy Ltd and Low Carbon Developers Ltd. Mark's fund management business set up one of the first UK solar roof funds: the Low Carbon Downing solar VCT and he is founder and leader of the ground breaking 320MW Swansea Bay Tidal Lagoon project.



Borries Plass, Chief Operating Officer

Borries Plass is a senior business executive with 20 years of experience within the service industry, of which 12 years in Vietnam. His background involves industry sectors work with financial services, manufacturing, retail and utilities. Borries holds a bachelor's degree from Northumbria University at Newcastle Upon Tyne, UK and an executive master's degree in business administration from the HULT International Business School at Shanghai, China.



Mike Edge, Head of Finance

Mike is a renewable energy expert with over 12 years of experience in financial structuring, project optimisation, commercial negotiation and fundraising in the low carbon sector. He has worked across markets, technologies and the full development cycle. In Vietnam, Mike heads up the Transaction Team which has responsibility for setting commercial and legal terms, structuring deals and funding all of Shire Oak's rooftop solar projects. As Head of Finance across the Shire Oak group, he is also responsible for structuring and optimising deals brought forward by the development teams in other locations. Mike studied Natural Sciences at the University of Cambridge.



Simon Nias, Development Director Southeast Asia

Simon has held several leadership positions across the world in his work for Singaporean Homeland Security, the UK's Ministry of Defence, the United Nations and the British Army, including Deputy and Chief of Staff of Singapore's Armed Response Forces for Homeland Security in Singapore and Chief of Staff of British Forces in Afghanistan. Simon leads client engagement in Vietnam



Solar Rooftop Business

Vietnam is one of the world's most fertile markets for solar energy. With a rapidly expanding economy, the country has a requirement for over 6,000MW of new power every year while the government has pledged to reduce annual GHG carbon emissions at least 8% by 2030. With international support, this reduction could rise to 25% and is only achievable through the widespread adoption of renewable energy.

The country's booming manufacturing sector will be an essential partner in this effort. Currently, Vietnam has a staggering 98,000 hectares of industrial parks that host almost all the world's major brands. The majority of these are based in the south of the country where power is in short supply, but where sunlight is abundant. As such, Vietnam's government is currently advocating the development of solar rooftop projects by offering a preferential tariff for rooftops ahead of ground-mounted projects.

The Offering

Shire Oak International absorbs the cost of installation as well as initial operation and maintenance for all of our solar systems. Clients then choose one of two pricing models over a desired lease period to pay for their solar energy. At the end of the lease period full ownership of the system is transferred back to the client for a nominal fee of USD \$1.

Option 1: Discount to standard EVN prices over lease

Under this model clients receive solar energy at a discount to EVN prices over a 15 or 20-year lease. Over 15 years the discount is guaranteed at 5%, while over 20 years the discount is guaranteed at 10%. At the end of the lease the business inherits full ownership of the system.

Option 2: Fixed energy price over lease

This model ensures energy prices remain fixed over the lifetime of the lease, even as EVN prices go up. As such the starting price is likely to be higher than EVN, but will soon fall below EVN prices.



Our Partners

Shire Oak's EPC Partners in Vietnam are Kingtek, Vu Phong Solar and Solar Electric Vietnam. All three partners are market leaders in the Vietnamese rooftop market.



Vu Phong Solar was established in 2009 and has delivered over 1,000 rooftop projects to date.

Vu Phong is currently a sub-contractor for approximately 1,000 MW of ground mounted solar, besides its pipeline for Shire Oak which totals 100 MW.



Kingtek was founded in 2015 and has already built approximately 400 rooftops.

Their pipeline for Shire Oak as of end 2019 stands at 78 projects, totalling a 110 MW potential.



Solar Electric Vietnam was formed in 2015 and has to date completed 4 MW of projects on industrial buildings.

SEV currently has a portfolio of 214 MW with 41 potential clients for development in cooperation with Shire Oak.

PROJECT PIPELINE

Shire Oak International currently has a pipeline of 720 projects in Vietnam, spanning the length of the country with a total estimated system value over USD 1.9 billion.

Our 2 offices in Ho-Chi-Minh-City and Hanoi cover all provinces, currently developing projects in 45+ provinces.

The following map gives an overview of where in Vietnam Shire Oak currently operates.



Project pipeline
720+



Capacity
2.1 GW+



System value
USD 1.9 billion



Customers
in 45+ provinces



PROJECT REFERENCES

Le Tran Furniture

Le Tran Furniture specialises in the production of furniture, furnishings and other products from metal, wood, plastic (including recycled plastics) and glass.

It was founded in 2001 and exports 300 40'HC shipping containers per month to markets including Europe and South America.

Le Tran has over 200,000 square meters of workshop area. SOGA had developed a 748.44 kWp solar system in Nhi Xuan Industrial Park. A 974.16 kWp PV solar system is in progress in Hai Son Industrial Park.



PV System Profile | 748.44 kWp Le Tran Nhi Xuan

Location:	HCMC, Viet Nam
Operator:	Shire Oak International
Commissioning:	1/22/2020

PV system power:	748.44 kWp
Annual Production:	approx. 1,031,350 kWh (1,378 kWh/kWp)
CO2 avoided:	Approx. 892.10 tons per annum



PV System Profile | 974.16 kWp Le Tran Hai Son

Location:	Long An province, Viet Nam
Operator:	Shire Oak International
Commissioning:	11/06/2020

PV system power:	974.16 kWp
Annual Production:	Approx. 1,327,000 kWh (1,363 kWh/kWp)
CO2 avoided:	Approx. 1147.90 tons per annum

Galaxy Cotton

Galaxy was established in 2010, operated in trading cotton, yarn and chemicals for the textile and garment industry.

Galaxy products are sold about 98% are exported and 2% in domestic market. Their international markets include countries such as: Korea, China, Malaysia, Philippines, Taiwan, Japan and Latin Countries, etc.

Galaxy has 10,000 square meters of workshop area. SOGA had developed 2 solar systems on their rooves in February 2020.

PV System Profile | 426.60 kWp Bong Thien Ha

Location:	HCMC, Viet Nam
Operator:	Shire Oak International
Commissioning:	2/21/2020

PV system power:	426.60 kWp
Annual Production:	Approx. 588,879 kWh (1,392 kWh/kWp)
CO2 avoided:	Approx. 509.40 tons per annum



PV System Profile | 997.77 kWp Bong Thien Ha

Location:	HCMC, Viet Nam
Operator:	Shire Oak International
Commissioning:	21/02/2020

PV system power:	997.77 kWp
Annual Production:	Approx. 1,390,891 kWh (1,394 kWh/kWp)
CO2 avoided:	Approx. 1,203.10 tons per annum



BOHO Décor

BOHO Décor was founded in 2015 out of a timely recognition of real-estate investors' rising demand in quality control for design-and-build package services in Vietnam. Since their establishment, they have grown from a group of 6 initiators to an elaborate team of 150 aspiring members. BOHO has demonstrated an enormous capacity for growth as well as gained the trust of large domestic and foreign investors through challenging Design and Construction Contracts of big projects such as Viettel Headquarter, Ho Tram Strip, Hado Centrosa Garden along with others.



PV System Profile | 996.70 kWp Boho Décor

Location:	Long An province, Vietnam
Operator:	Shire Oak International
Commissioning:	15/05/2020

PV system power:	996.70 kWp
Annual Production:	Approx. 1,406,000 kWh (1411 kWh/kWp)
CO2 avoided:	Approx. 1,216.19 tons per annum





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