



Global life saving solar solutions



Trusted Expertise

We have worked all across the world for three decades providing energy solutions in areas without reliable electricity supply. The products and systems we have developed were born out of first hand experience working with the poorest of the poor in countries such as Sudan, Eritrea and Nigeria.

Dulas first developed solar powered refrigerated blood banks and operating theatre lighting for war torn Eritrea, and then went on to develop the first solar powered vaccine refrigerators for use globally. This pioneering development attracted the attention of the World Health Organisation with whom Dulas worked closely to develop solar vaccine refrigerators that could meet stringent performance, quality and safety standards, which are still the benchmark for solar refrigeration today.

This experience is backed up with true customer care. Our solar solutions are made to save lives so they must be dependable; we manufacture our systems to be robust and easy to maintain. We go the extra mile to make sure that your equipment will work consistently for years to come in the harshest environments, delivering safe vaccines, clean water or reliable energy when you need it.

Passionate People

Dulas was founded in 1982 to deliver renewable energy solutions that help build a better world. This is the principle that we still hold dear today. We are a business with a purpose: to improve people's lives through the provision of renewable energy solutions.

Our experienced team of engineers, consultants and technology specialists are committed to delivering long-lasting and robust solutions. As recognised experts, we are often called upon to provide training and support around the world. Our products and services include solar refrigerators and freezers approved to WHO standards, solar blood banking and laboratory fridge systems, solar water pumping solutions and solar power generating systems.

Even as a company we are a little different. Dulas is an employee-owned organisation and that shareholder commitment brings extra responsibility to build lasting relationships with our customers and to deliver great service with a personal touch.

1985



Solar powered battery charger (BC600). Hybrid system developed for a hospital with ability to operate via solar and grid-connect.

1999



Somalia - we provided solar generating equipment for a school to power lights, an inverter and power for the science room.

2001



Dulas solar vaccine fridge systems in use throughout Peru.

2002



Provided solar training for cold chain technicians in Dhaka, Bangladesh.

2007



Worked with UN representatives in Eritrea to provide lighting, radio communications and satellite in times of crisis and no power.

2009



Solar fridge training for remote communities in Laos.

2010



Dulas supplied 30 sea containers of solar vaccine refrigerator systems for the cold chain in India.

2011



Transportation of a Dulas solar fridge to a remote community in the Amazon.



Community project in Uganda, Africa

Solar Powered Refrigeration

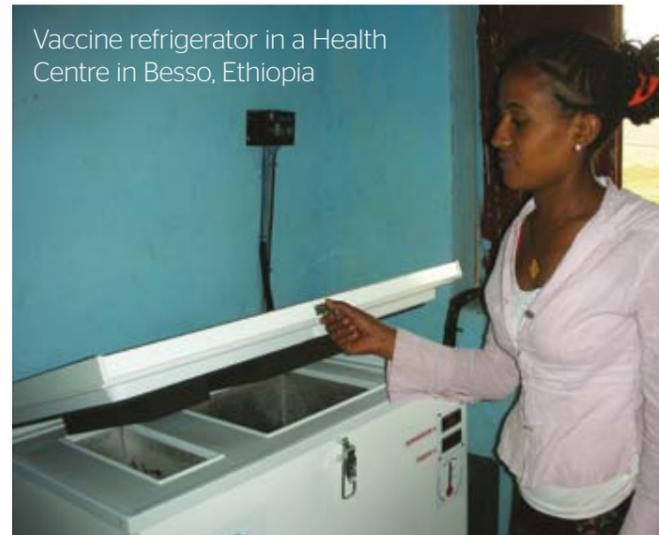
Dulas engineers were a pioneering force in the development of solar powered vaccine refrigeration in the 1980s. We have moved on to become the world's leading supplier of these fridges.

Dulas has tested systems in the harshest environments. Working closely with the World Health Organisation and major INGO/NGOs, Dulas has ensured that in-depth field trials, independent verification and laboratory testing have formed the foundations of the award-winning products we offer today. This success is based upon the fact that our systems are reliable, give value for money and are tried and tested across the world.

Our track record of supplying thousands of solar powered vaccine fridges to the most remote areas is evidence of the trust that Ministries of Health, NGOs, governments, charities and private companies have in us and our products. We repay this trust by providing excellent customer service and support to ensure that your cold chain system stays in operation for years to come.



Cold chain technician training, Bangladesh



Vaccine refrigerator in a Health Centre in Besso, Ethiopia



Delivery of vaccine refrigerators in rural Laos

Vaccine Refrigeration

All our solar powered vaccine refrigerators exceed the stringent World Health Organisation PQS standards.

With energy efficiency at the heart of their development our refrigerators are some of the **most efficient** in the world. Supplied with a high quality Dulas solar power system they offer a minimum of **5 days no-sun autonomy**, keeping your valuable vaccines safe in the harshest environments.

With **easy to read** temperature displays and out-of-temperature **alarms**, looking after vaccines has never been so easy. These systems quickly pay for themselves in reduced wastage and fuel costs when compared to gas or kerosene systems. The highly insulated steel cabinet is strong and lockable and all our fridges are **completely CFC free**.

VC65-2

Our smallest and most cost effective solar refrigerator. The VC65-2 is ideal for remote facilities that do not require the greater storage of our larger appliances while also providing essential ice pack freezing capabilities.

Gross refrigerator volume 66 litre

Gross freezer volume 24 litre

VC150-2

Newly revised to offer increased vaccine storage capacity, the VC150-2 has the greatest vaccine storage capacity of any combined solar vaccine refrigerator and water pack freezer currently on the market. The VC150-2 is ideal where a large vaccine storage volume is required as well as the capacity to provide ice packs for cold box distribution.

Gross refrigerator volume 152 litre

Gross freezer volume 34 litre

VC200-1

Influenced by feedback from cold chain professionals, Dulas have developed the largest solar vaccine refrigerator on the market. Meeting the stringent PQS standards while providing greater capacity for vaccine storage, it is an exciting advance in the solar cold chain.

Gross refrigerator volume 205 litre



Minimum of 5 days no-sun autonomy, keeping your valuable vaccines safe in the harshest environments.



David Elliot, Senior Solar Engineer with Peruvian Ministry of Health Officials



VC65-2



VC150-2



VC200-1



Display and alarm

NEW

Blood and Pharmacy Refrigeration Systems

Dulas refrigerators are also available for blood banking and for general medical centre use. These efficient low-energy systems are perfect for use in areas of intermittent or unreliable electricity supply.

 Developed for use in remote health clinics with unreliable electricity supply.



VC65B

The VC65B has been developed specifically for remote health clinics and hospitals in areas of erratic grid supply. With complete stand-alone capabilities, the VC65B provides peace of mind for life saving blood storage.

Refrigerator	24 (450ml) blood packs
Freezer	16 x 0.6 litre ice packs
Temperature chart recorder for detailed monitoring	

D180

The D180 pharmacy and laboratory solar fridge or freezer is ultra efficient. Where electricity supply is unreliable or non-existent, this all purpose unit can keep your medicines fresh or frozen with a reliable, low maintenance solar system.

66 litres capacity - can be either fridge or freezer	
A++ rating for energy efficiency	

Applications

We have delivered renewable energy solutions and services to a vast range of customers. Here is an insight into some of our projects.



Location: Yemen

Details: Pilot project of 30 systems, plus training and supply of a further 190 systems

Client: Yemen Ministry of Health

Yemen Ministry of Health contracted Dulas to help develop their infrastructure for immunisation facilities, particularly Polio vaccine. The project involved developing appropriate products, supply of solar powered refrigeration equipment for the storage and distribution of vaccines and training for key workers.

The key worker team worked with Dulas to roll out the systems to a total of 15 separate areas, with difficult terrain, challenging communications and journeys of up to 3 days from port to installation site.

The flexibility and robustness of the fridge systems has contributed to the overall success of the WHO immunisation programmes.

“Dulas is one of a handful of companies world-wide who are qualified as solar system suppliers and who manufacture a range of CFC-free solar refrigerators for use in the cold chain and rural health facilities.”

Cath Peasley
Head of International Team, Dulas



Location: Ghana

Details: Solar Vaccine Refrigerators

Client: Buchman Medical Services

In 2007, Dulas supplied Buchman Medical Services with 30 VC65 solar vaccine refrigerator systems for application into rural health centres around Ghana State. Our refrigerators were chosen because they offer the most effective cost for sheer volume of vaccine storage required, plus the fact that they are highly efficient at ice-pack freezing even at low ambient temperatures and have easy to read displays.

The Dulas solar vaccine refrigerator systems are helping to store vital drugs and vaccines to combat the spread of disease in Ghana.

“Dulas were professional and helpful, especially when dispatching our 30 systems.”

Silvana Hochtanzcv,
Buchman Medical Services

Solar Vaccine Refrigerator Training

As one of the world's largest manufacturers of solar medical refrigerators for over three decades, Dulas has been providing training to support our products from the very beginning.

We have held courses all around the world and have developed a core training programme that repeatedly enables cold chain technicians to become confident and capable in installing and maintaining solar refrigerators.

Our standard course is aimed at cold chain technicians who have some experience of vaccine refrigeration but for whom solar power is a new technology. The courses usually last 2 weeks and are structured around a mix of classroom based lectures and practical sessions, followed by a series of real solar refrigerator installations. In this way everybody has the chance to put into practice the new skills and knowledge they've gained in the classroom.

Bespoke courses are also available. These might be shorter courses for a very small group or a "train the trainer" programme to enable in-country training programmes to be run by local staff.



Practical session in Angola, Africa

Training, Iquipi Health Centre, Peru



Classroom lecture in Pune, India



Solar Powered Water Pumping

Water is life and access to a reliable and clean water supply can transform a community providing sustenance for people, animals and crops.

Solar powered water pumping technology provides access to a clean water supply, reducing the reliance on diesel generator pumps. Solar water pumps are extremely reliable and have low operating costs, making them an important solution for small and medium scale water supply in rural areas.

Once installed, these systems are **low maintenance, fully automatic** and **economical**. Relying on natural solar energy and without the complexity of batteries, they avoid fuel supply headaches. Water is pumped through the daylight hours into a holding tank that gives a **24 hour 7 day per week supply**.

Solar powered water pumping is suitable for remote villages and residences, remote hospitals and schools, livestock watering, small scale irrigation using boreholes, wells and reservoirs. We can also offer on-site training and assistance with installation for our water pumping systems.

Technical specification

- Cutting edge technology solar components
- Auto restart controls and dry run protection
- Pumps devised to work in harsh environments
- Flexible rising main for quick and easy installation and removal
- Cables and accessories
- Options of 304 or 316 stainless steel, level switch and flow sleeve for horizontal mounting.

Applications

Location: Eritrea

Details: Solar powered water pumps

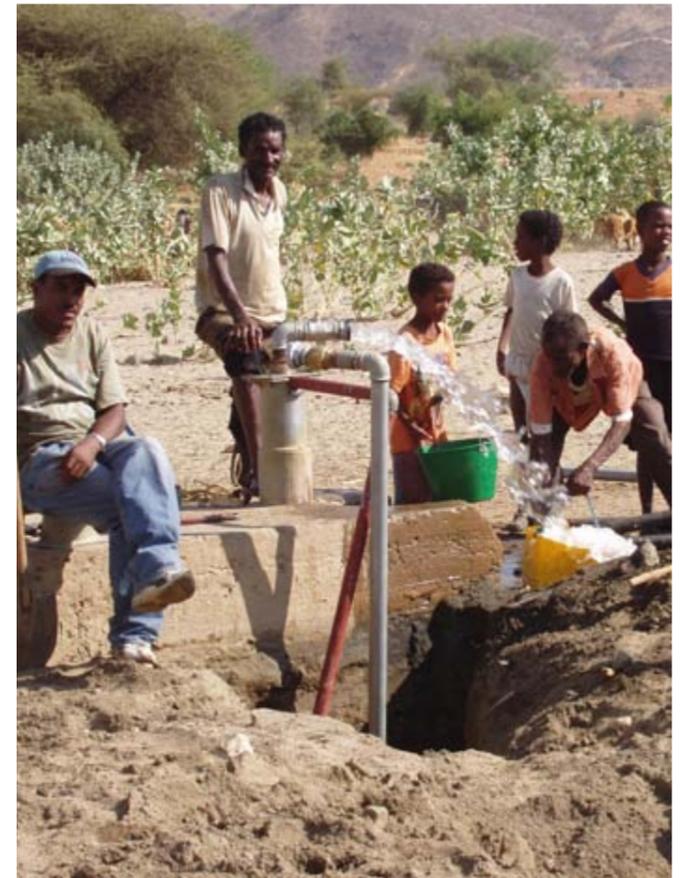
Getting clean water to people in remote areas is not an easy job - particularly if people are living in temporary camps and inaccessible villages where sanitised water is not readily available.

The installation of a solar water pumping system is an economical and reliable solution, particularly for delivery to isolated locations.

Dulas has installed solar water pumping systems for the Eritrean Ministry of Agriculture, Ministry of Health and other large high-profile aid organisations working actively in Eritrea eg. GAVI.

“It is so important to be able to set up these new water supply systems in remote areas. That way - we can continue to make a real difference to the world.”

Bruce Nelson,
Technical Sales Consultant, Dulas



Solar Power Solutions

Dulas provide expert solutions for critical energy users in areas of poor electricity supply. A solar system can provide low maintenance, clean and constant energy without the need for diesel generators or reliance on fragile electricity networks.

A solar power system can bring vital, dependable and consistent energy supply to medical centres, research facilities, remote villages and aid relief centres. Our engineers will configure your system to suit your energy demands and the amount of sunshine at your location. Our bespoke systems are developed using the highest quality components to ensure the supply of 'clean' electricity long into the future.

Matching your energy demands to correctly specified components will make all the difference to the long-term performance of your system and our engineers have the global experience to make sure that your system is the very best for your local conditions.



Installation of 30 solar power systems for UN agencies in Eritrea

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Location: The Gambia

Details: Constant power supply for medical oxygenators

Client: UK Medical Research Council

Working alongside the UK Medical Research Council in The Gambia, Dulas engineers developed a secure power source for oxygen delivery systems as part of a research project looking into how power supply affects infant mortality due to pneumonia.

The system allows oxygenators to be available to patients 24 hours a day, 7 days a week. The next phase of the project will be to integrate solar energy to provide a completely sustainable and free source of energy in this emergency setting.

“We gratefully acknowledge Dulas Ltd for the time they donated to help develop the power system and assemble the components in a ready-to-use format for this project, as well as for providing technical trouble-shooting support when the system was being tested.”

Beverley Bradley, Research Scientist



Location: Sierra Leone

Details: Solar technologies for a Lassa Fever laboratory

Client: Local Health Authority

In 2009 Dulas supplied a solar power and battery back up system to provide secure electricity to laboratories researching Lassa Fever in Freetown, Sierra Leone.

The system configuration consisted of an 8.5kW solar array with battery bank and inverter. Dulas provided an electrical distribution board which was pre-assembled to ensure it could be used quickly upon delivery. Our technical consultants specified use of our preferred brands including Kyocera modules, a Studer inverter, Steca controllers and BAE batteries; all chosen for their high quality, proven use and longevity in high ambient temperatures.

“Dulas' power systems ensure that no hospital, clinic, health centre or remote medical station need be without electricity.”

Guy Watson, Head of International Operations, Dulas



Some of the countries Dulas operates in



About our logo

Dulas (pronounced “dih-lass”) means “black blue” in Welsh and is the name of one of the rivers flowing through the Dyfi Valley, the birth place of Dulas. The Dulas logo represents some of the key elements of our business. In it you can see the sun’s rays, the blades of a high-torque wind turbine or a cut-away of a hydro turbine. The wave through the centre is a sine-wave of an electrical alternating current, the output of many of our technologies.

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three decades
of excellence in
renewable energy
engineering

