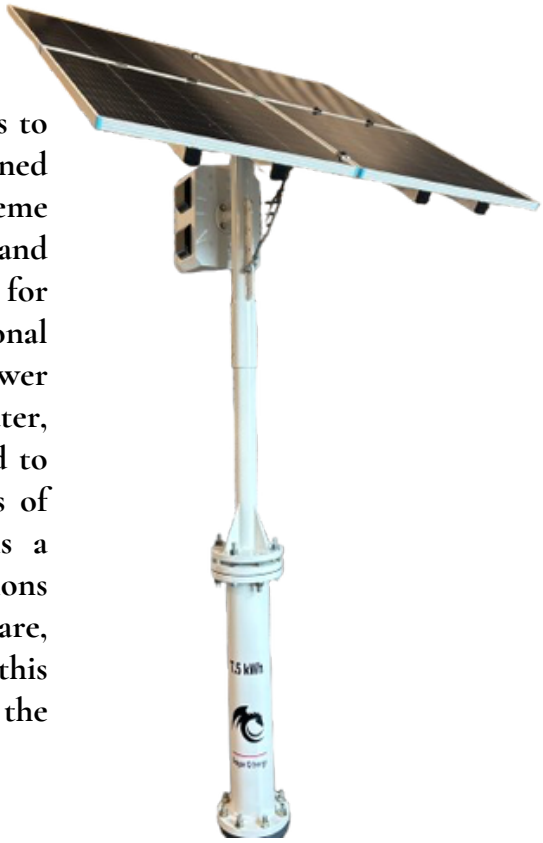
Dragon Q Energy

The PowerPole

Mission

Empowering people and transforming lives in extreme climates with our robust and safe off-grid power solutions, focusing on humanitarian and development agencies to provide sustainable energy where it is most needed



Problem

Across the world, there are nearly 700M people living without access to electricity. 4 out of 5 live in Sub-Saharan Africa, an area that is renowned for its remote areas and its extreme temperatures along with extreme flooding. Such temperatures can cause power systems to overheat and malfunction. Additionally, these temperatures increase the demand for cooling solutions, which further strains limited power resources. Seasonal flooding, worsened by climate change, poses another major risk. Power systems can be damaged or rendered inoperable when exposed to water, causing not only costly repairs, but also making them a safety hazard to those who use them. Furthermore, the remoteness of many regions of Sub-Saharan Africa make the installation of such power systems a significant undertaking. This leaves the people living in these regions without access to many basic necessities including modern healthcare, education, or telecommunications to name a few. The scale of this problem is so large that the United Nations has named it as one of the Sustainable Development Goals (7)

Solution: The PowerPole

Dragon Q Energy is developing an all-in-one off-grid power generation, storage, distribution and monitoring system through our patent-pending PowerPole. The PowerPole is engineered to withstand extreme climates and harsh weather conditions, ensuring reliable power in even the most isolated locations where traditional power systems cannot reach

By burying our batteries just beneath the surface, we leverage geothermal cooling to enhance performance and longevity. The PowerPole employs a pressurized argon, oxygen-free, environment to significantly reduce fire risks, ensuring safety. Units are outfitted with a Starlink satellite internet connection for internet connection and remote monitoring of the system. Additionally, our modular design allows for easy scalability and is designed with logistics in mind to facilitate straightforward deployment wherever electricity is needed.

Applications

- Healthcare Clinics
- Schools
- Device Charging
- Refrigeration
- Water Pumps/Filters
- Satellite Internet Connections
- Government & Military applications

PowerPole

Specifications & Configurations

Configurations

Battery	Solar Array	DC-AC* Inverter (Cont/Peak)	DC Power (Main)	DC Power (Aux)	USB/USB-C (Aux)	Exandalbe Solar
Li-ion 3.75 kWh 24V	460W	200W/400W	24V/25A	12V/15A	5V/10A	Yes
Li-ion 3.75 kWh 24V	690W	300W/700W	24V/25A	12V/ 15A	5V/10A	Yes
Li-ion 3.75 kWh 24V	920W	400W/900W	24V/ 25A	12V/ 15A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	460W	400W/900W	48V/60A	12V/30A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	920W	650W/1500W	48V/60A	12V/30A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	920W	1000W/2200W	48V/60A	12V/30A	5V/10A	Yes

Environmental Information- Direct Burial

Pack Operating Temperature (Max Permissiable)	-20°C to 55°C (-4°F to 131°F) Discharge 0°C to 45°C (32°F to 113°F) Charge
Pack Operating Temperature (Max Cycle Life)	0°C to 30°C (32°F to 86°F) Charge/Discharge
Recommended Tempurature (Air)	-73°C to 76°C (-100°F to 170°F)
Recommended Tempurature (Soil)	0°C to 37°C (32°F to 100°F)
Humidity	Up to 100%, condensing, standing water
Storage Conditions	0°C to 30°C (32°F to 86°F) 0% to 100% Relative Humidity, condensing State of Charge (SoC): 20% - 30% (Initial)
Maximum Elevation	18,288 M(60,000 ft)* Max Civial Aviation Altitude (Space, lunar and mars specs avaliable)
Environment	Underground, (Indoor & outdoor cooled)
Pack Enclosure Type	Dragon Q Energy Custom - Hermetic w/ Pressurized Argon
Ingress Rating	IP68 (Pack and BMS Enclosure)*
Wet Location Rating	Yes

Safety Specifications

Pack Thermal Runaway (TR) Mitigation	Positive Argon pressure keeps TR in cell casing. Hermetic environment starves initial fire of oxygen*
Pack TR Propagation Prevention	Pressurized Argon extinguish flames from ruptures cells*
Primary TR Control (Retention)	Pack can retain smoke, gases, chemicals of cell TR, while venting the pressures to prevent pack explosion and deflageration*
Secondary TR Control (Retention)	Pack can retain smoke, gases, chemicals of 2nd cell runway, while venting the pressures to prevent pack explosion and deflageration*
Tirtiary TR Control (Release)	Pack can release smoke, gases, chemicals of cell TR overboard though a port and customer conduit, to prevent container explosion and deflageration*

Installation

Dig

Insert

Bury

Power