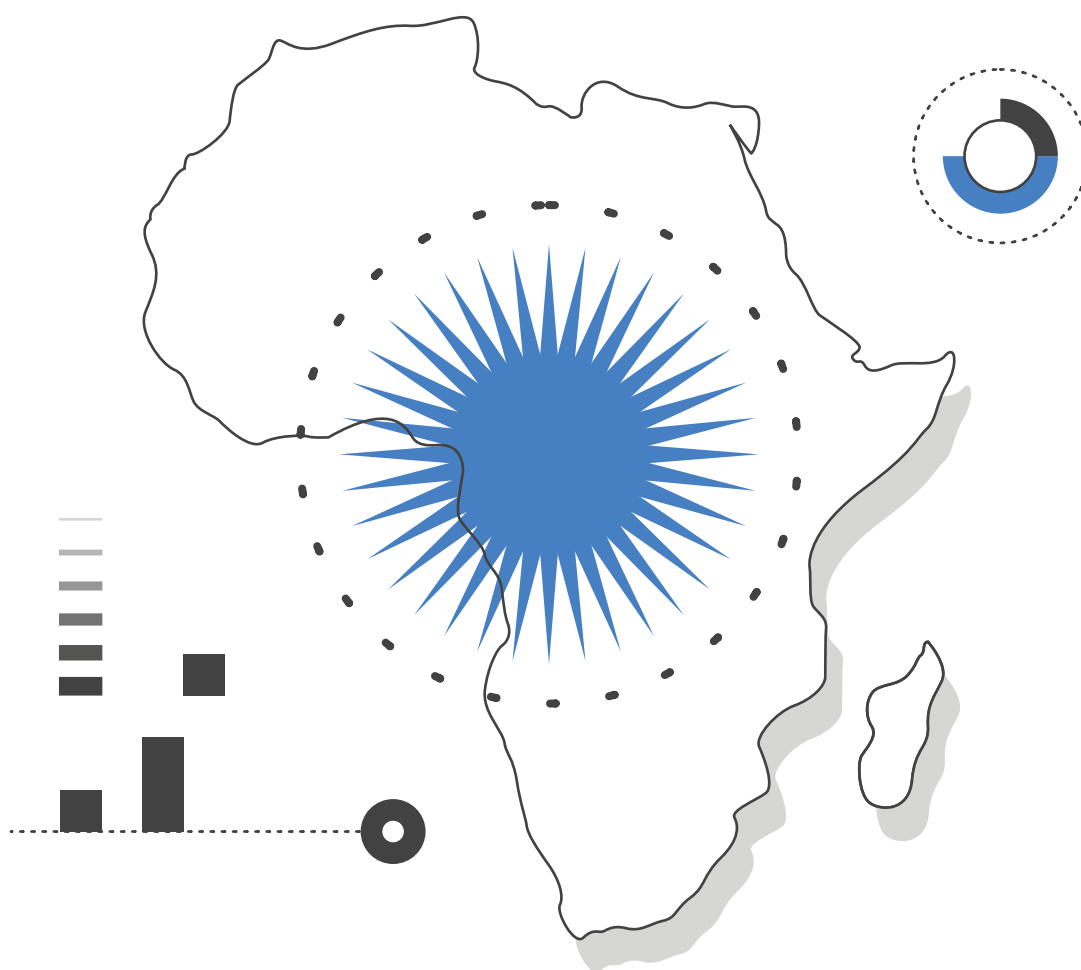

Liberia, Meet iLamp Africa



Prepared for:



Liberia, Meet iLamp

iLamp Liberia is a smart streetlight solution tailored to Liberia's unique challenges, offering a reliable way to reduce crime, save lives, and provide sustainable energy.

Self-powered and self-sufficient, iLamp operates independently from the grid, offering an always-on, robust, and reliable lighting solution. In a country where less than 2% of the population has access to electricity—and only 6.7% in Monrovia—iLamp stands as a beacon of dependable light, even amidst power cuts and outages.

But iLamp is more than just a light source; it is a community asset, a localized power source, and a step towards energy independence. With a cylindrical solar panel that cleans itself, iLamp is resistant to Liberia's environmental challenges, from dust to heavy rains and flooding, ensuring continuous power generation in any condition.

As a modular system, iLamp offers a platform for innovation, enabling developers to create plug-and-play modules that leverage iLamp's sensors and communication tools for advanced functionality. Modules pay for the power and data

resources they consume, creating a marketplace of capabilities. Developers can submit apps to the iLamp App Store, utilizing its onboard sensors to deliver services like environmental monitoring and public safety—a vital feature for Liberia’s communities.

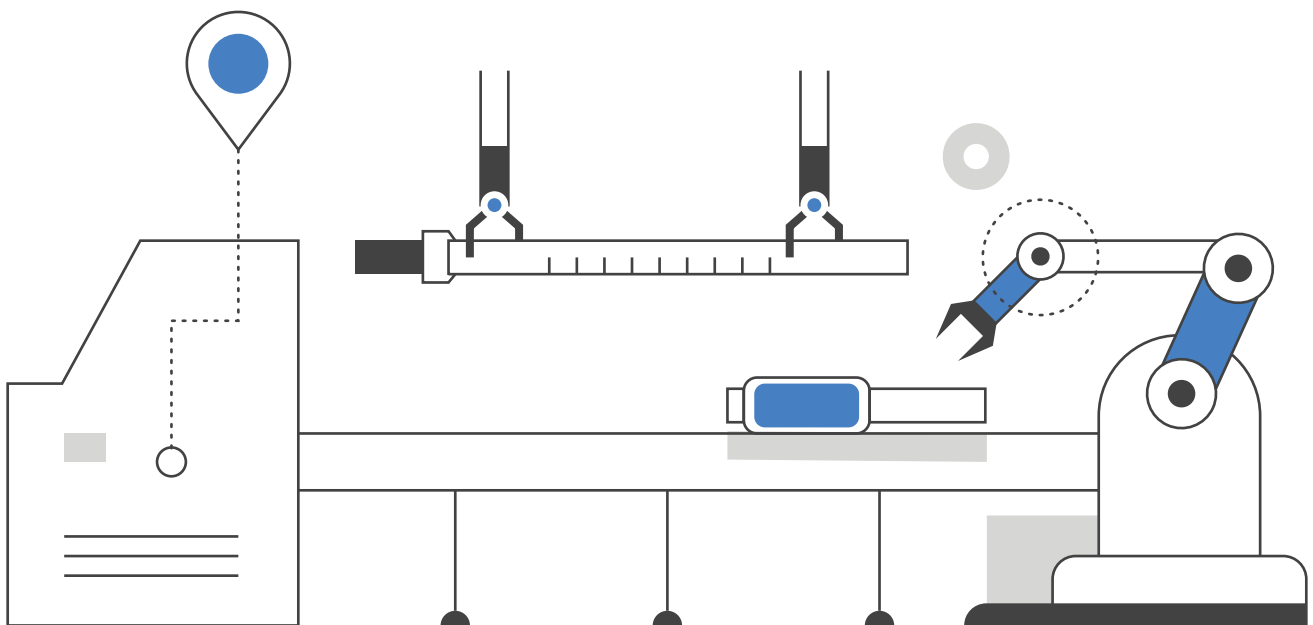
Each iLamp functions as a miniature microgrid, generating resilient and sustainable energy exactly where it’s needed. Modules are billed for energy usage and services such as data transmission and sensor access, merging energy production with innovative functionalities. With iLamp, Liberia can address energy shortages and high energy costs in a way that supports local infrastructure.

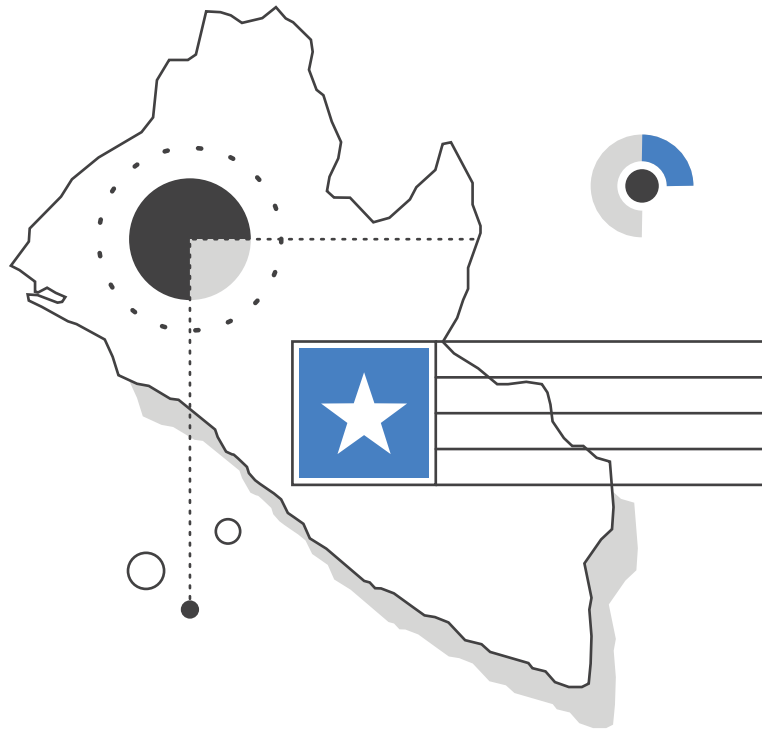
In Liberia, the energy sector is undergoing a major transformation, with the Government and development partners rebuilding infrastructure destroyed in the civil war. Though current grid capacity is limited to about 23 MW, plans are underway to expand capacity through projects like the Mt. Coffee Hydropower Plant, which aims to add up to



80 MW by 2018. Yet, Liberia still relies heavily on diesel generation, with high electricity tariffs and limited grid access. With iLamp, however, communities can sidestep these constraints, achieving energy independence through local, renewable sources.

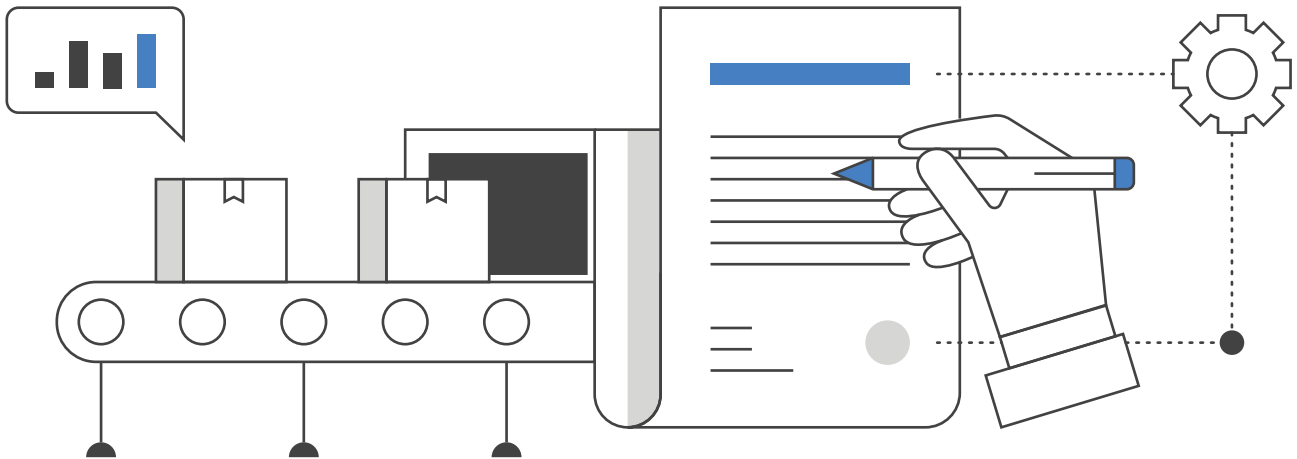
By building micro-factories locally, iLamp Liberia also fosters economic growth, creating local jobs and enabling streetlight customization to fit each community's needs. This high mix, low volume production ensures that iLamp aligns not only with Liberia's environmental requirements but also with the unique character and needs of its neighborhoods.





Liberia has tremendous potential in renewable energy, particularly in hydro, biomass, and solar, yet faces significant challenges due to seasonal variation, aging infrastructure, high costs, and underinvestment. By providing reliable lighting and serving as a localized power source, iLamp supports Liberia's energy goals, creating safer environments, promoting economic development, and offering a sustainable path forward.

Through partnerships with local property developers, public works contractors, community leaders, and local consultants, each iLamp becomes an integral part of the communities it serves, enhancing the vibrancy and resilience of Liberia's cities and rural areas alike.



Liberia, Join iLamp

The energy challenges faced by Liberia demand more than traditional solutions; they require an approach that is flexible, resilient, and deeply adapted to local needs. iLamp has laid the foundation for building customized microgrids that go beyond lighting to provide reliable, resilient energy solutions tailored to Liberia's specific requirements.

iLamp's smart streetlight system, while focused on delivering safe, sustainable light, has pioneered core technology, design principles, and deployment strategies ideal for creating scalable microgrids. Through its experience developing autonomous, modular power systems, iLamp has gained valuable insights into managing diverse environmental conditions, meeting fluctuating energy demands, and integrating multiple functionalities into a unified platform. This expertise seamlessly translates into designing microgrids that provide energy security, economic growth, and community resilience across Liberia.

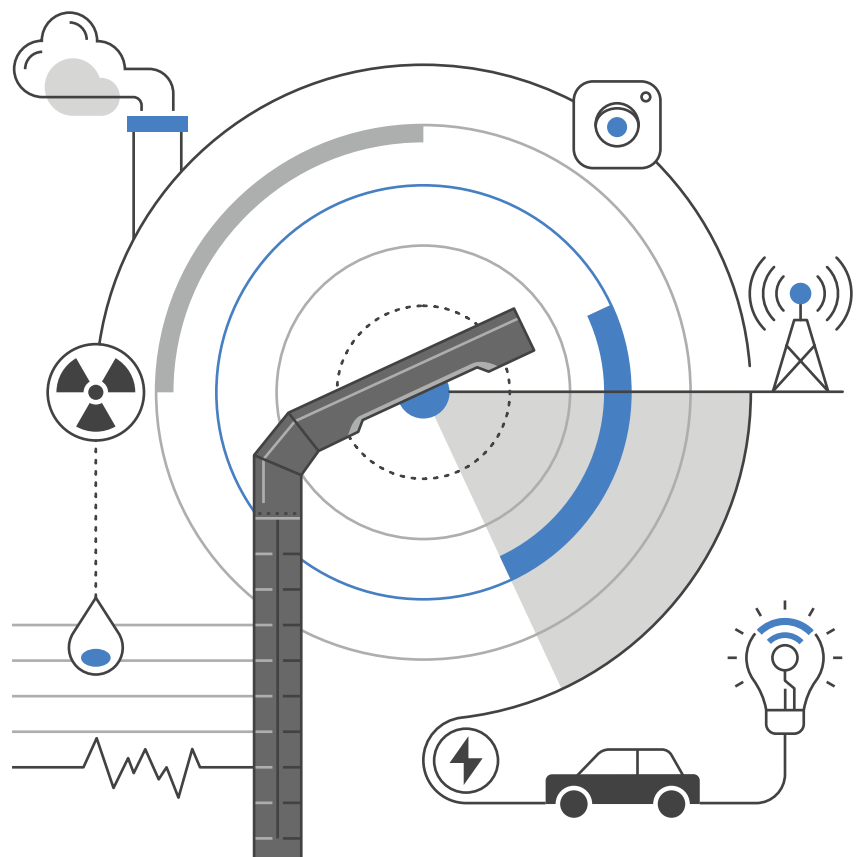
iLamp Microgrids:

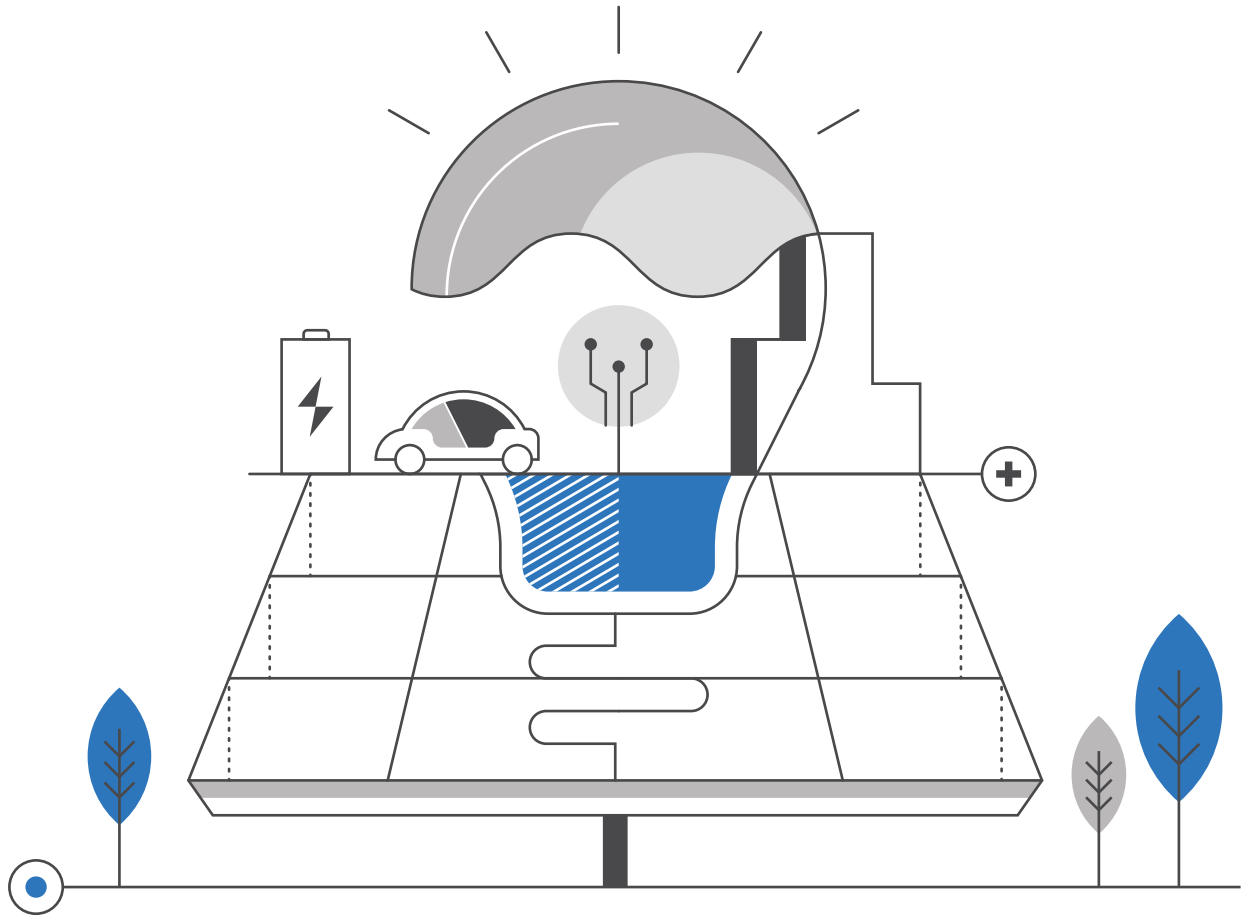
Tailored Energy Solutions: Each microgrid is customized

according to Liberia's local energy profiles, balancing generation and storage for maximum efficiency and reliability. This approach ensures that communities receive energy solutions that meet their specific requirements, including resilience against Liberia's seasonal environmental challenges.

Scalability and Adaptability: Starting small and growing with the community, each microgrid is designed to scale up as local energy demands increase. These systems can support residential, commercial, and public infrastructure, adapting as communities expand and their energy needs evolve.

Reduced Dependence on Fossil Fuels: By integrating renewable sources such as solar and biomass, iLamp microgrids reduce dependence on expensive imported diesel.





iLamp Africa Micro Grids

In Liberia, traditional energy infrastructure is limited - the deployment of tailored microgrids presents an immediate and long term solution to energy access challenges. These microgrids can:

Expand Energy Access: Electrify remote and underserved areas quickly, providing power where it's needed most.

Support Critical Services: Ensure reliable power for hospitals, schools, and emergency services, enhancing public health and safety.

Enhance Economic Growth: Power small businesses and agricultural operations, fostering local entrepreneurship and economic resilience.

iLamp Africa, backed by iLamp's strong track record, offers assurance that these solutions are field tested, adaptable, and ready to be scaled. By leveraging this experience, Sierra Leone can embark on a journey towards a more reliable, sustainable, and inclusive energy future.



RELIABILITY: Each microgrid is engineered to provide continuous, stable power.



RESILIENCY: Built to handle fluctuating demand and withstand local environmental challenges.



SUSTAINABILITY: Reduces carbon emissions while supporting long-term energy security.



COST-EFFICIENCY: Minimises reliance on expensive fuels, lowers overall energy costs for communities.



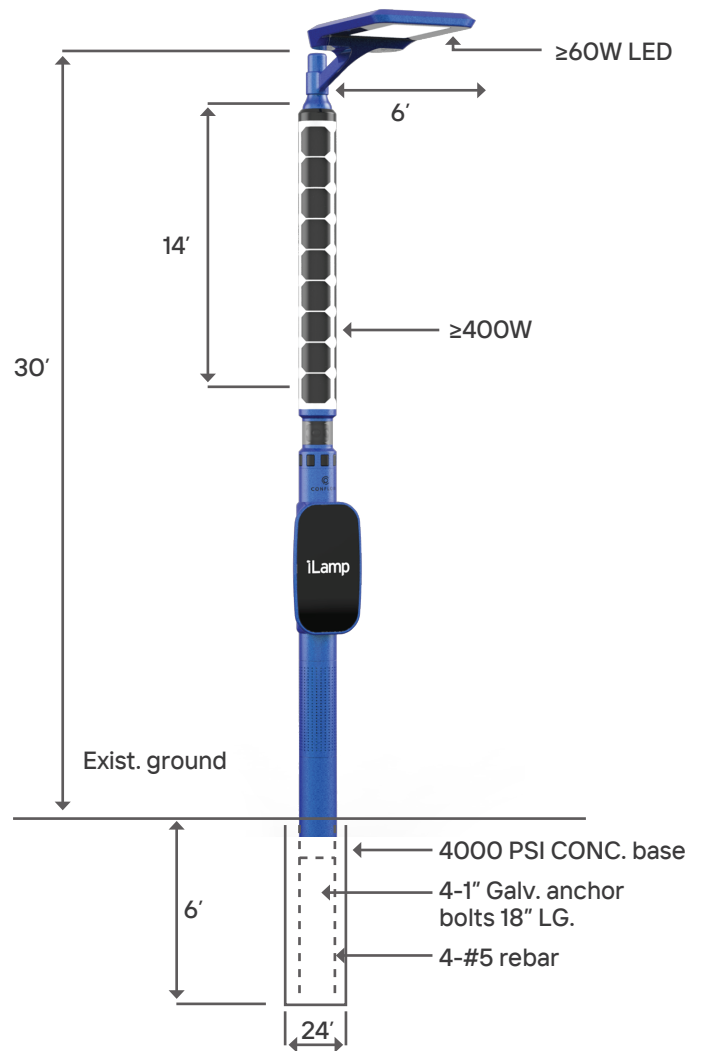
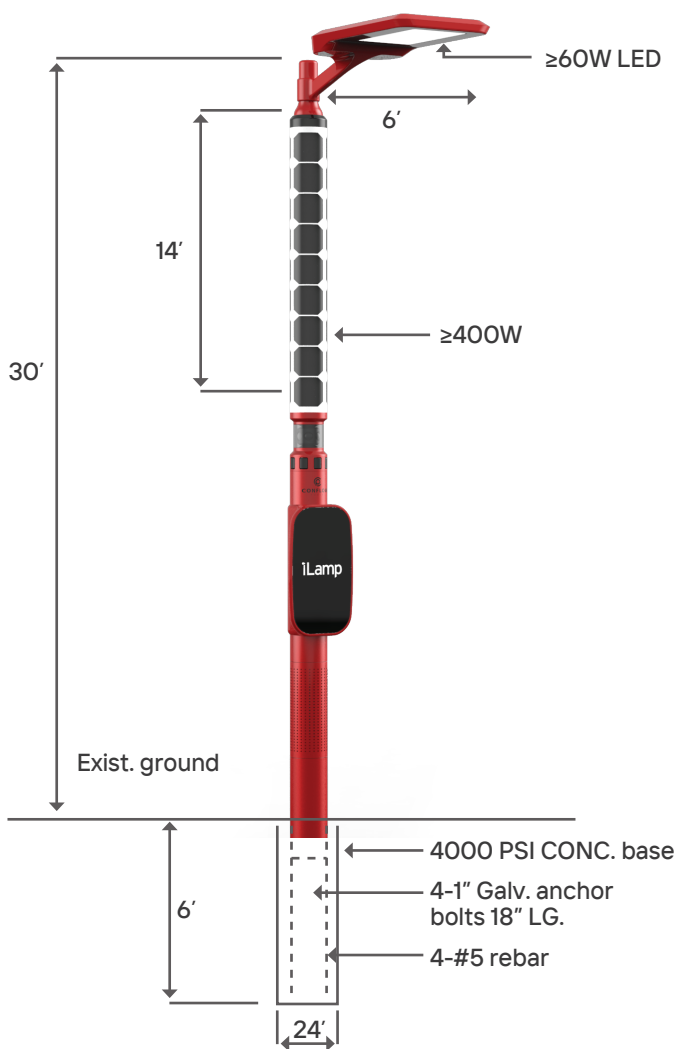
RAPID DEPLOYMENT: Modular design allows for rapid deployment and straightforward operation.

iLamp's expertise in building modular, autonomous power systems has set the stage for creating customized microgrids that provide reliable, resilient energy where it is needed most. By leveraging renewable sources, reducing reliance on imported fuels, and empowering local communities through job creation and manufacturing, iLamp offers a scalable, sustainable approach to addressing energy access issues.

This solution is not just about powering lights but about enabling economic growth, supporting critical services, and creating a pathway to a more resilient and prosperous future for Liberia.

Standard Drawings

Height, colour, modules and light arm and heads are all interchangeable.



Broad Specifications	Standard Pole (Single Solar Module)
Hardware	Patented Adjustable Aluminium Array
Solar Panels	≥400W, wrap around, glass covering
Battery Pack	12V, 75AH Lithium Ion / Conflow Device 12V
Lighting & Charge Controller	Exclusively Supplied by CPG
LED Light	≥60W LED, ≥160 lumens per watts
Dimensions (length)	Variable (depending on site conditions)
EPA	5.26ft ²
Weight (lbs.)	200


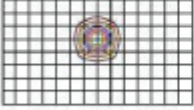
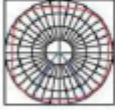


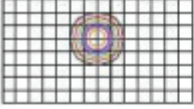
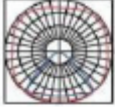



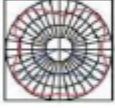


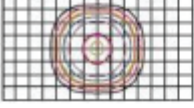
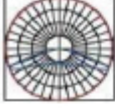


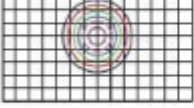
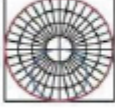

Lighthouse	
Dimensions	10.66" OD x 164.5" L
Material mounted to	Wooden, Aluminium, Steel or Concrete
Internal Mounting Options	Adjustable universal arm mount for poles up to 5" OD
Material	Anti-corrosive mounting hardware and array
Shape	Circular backing panels

LED Lights	LED Lights 50-50W Lantern or Street Light LED
Lumens	162 LM/W
Input Voltage	24V
CRI Minimum	70 (80 or 90 available special order)
CTT	4000K, 5000K (3000K and 5700K available special order)
Lighting Type	Solid state LED. T4M & T3L stocked. Other types available special order. IES Files available upon request
Life	>100,000 hours
Safety Certification	IP65, UL 1598, UL8750, CE, CB, ANSI C136.31-2001, RoHS Compliant, Meets Buy American requirements with ARRA

Solar Arrays CIGS	400W
Cell Efficiency	15.9%
Rated Peak Power (P _{mpp})	400 watts
Power Output Tolerance	+5/-0
Open Circuit Voltage (V _{oc})	62.6
Max Power Voltage (V _{mpp})	50.2
Short Circuit Current (I _{sc})	4.56
Panel Length (mm)	3457
Max Power Current (I _{mpp})	3.99
Safety Certification	UL 1703, IEC 61646, IEC 61730, cUL 1703, IEC 62716, IEC 61701 (Salt Spray)
Manufacturer Warranty	90% at 10 years, 83.5% at 20 years, 80% at 25 years

Batteries	Lithium Ion / ConFlow device Battery Pack
Nominal Capacity	75AH
Nominal Voltage	24V
Operating Voltage	20.0V up to 29.2V
Max Discharge Current	20A
Impedance	< 100m
Dimensions	L = 31.5cm, W = 23.0cm, H = 14.0cm
Weight	<16kg
Temperature Range	-30°C to +60°C
Expected Life	12-15 years based on shallow discharge of 4,500 Life Cycle
Autonomy	8 Days

MPPT / BatteryWare	Controller
Max Open PV Voltage Max Current	75.0V DC 15 amps
Battery Voltage Battery Current	29.4V DC 3.0 mps
Light Voltage Light Current	LED Specific
Dimming	0-5V DC
Efficiency	98% peak efficiency
CTemperature Range	-30°C to +60°C
Communications	Bluetooth Connection / Wifi where available
Safety	EN/IEC 62109-1, UL 1741, CSA C22.2

	ISO Plot	Polar Curve	Cu Graph
			
	T5 S Average beam angle 60°		
			
	T5 M Average beam angle 90°		
			
	T5 L Average beam angle 120°		
			
	T5 X Average beam angle 150°		
			
	T5 D Diffuser		