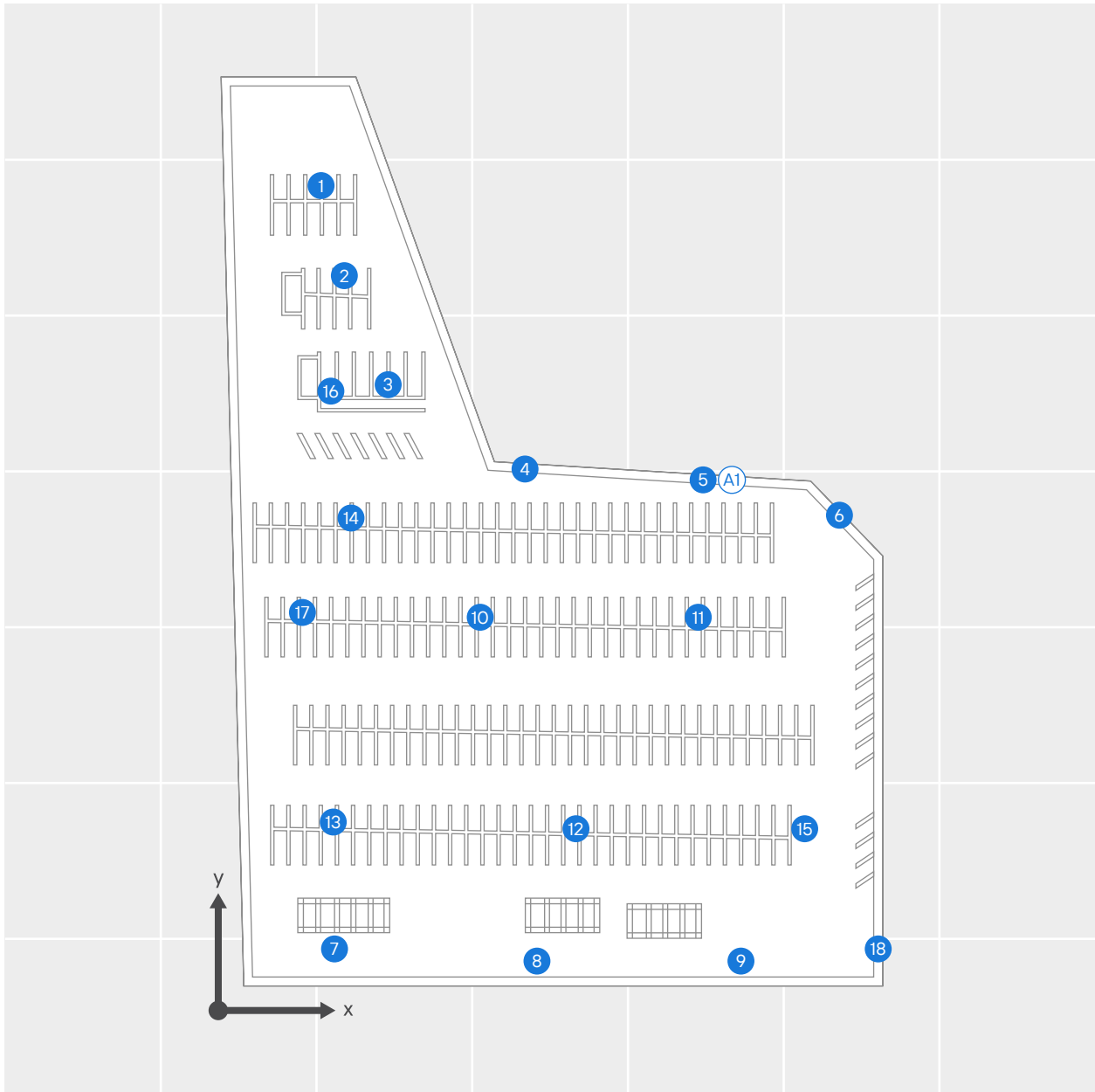


Dynamic solution to the issue of inconsistent lighting during the winter months in car park due to insufficient solar energy.



Overview

Installation of a microgrid system developed by Conflow Power Group (CPG) that incorporates enhanced solar, generator, and turbine technology to ensure that existing solar streetlamps have a reliable power source throughout the night, regardless of the season or weather.

The Problem



As it stands, the power generated by the solar panels attached to the streetlamps in your parking lot is insufficient during the winter months due to longer nights and poor weather conditions. This issue is causing lamps to run out of power during the night, which will negatively impacting both the lifespan of the batteries within the lamps and the visibility, safety and security of the area.

Our Solution

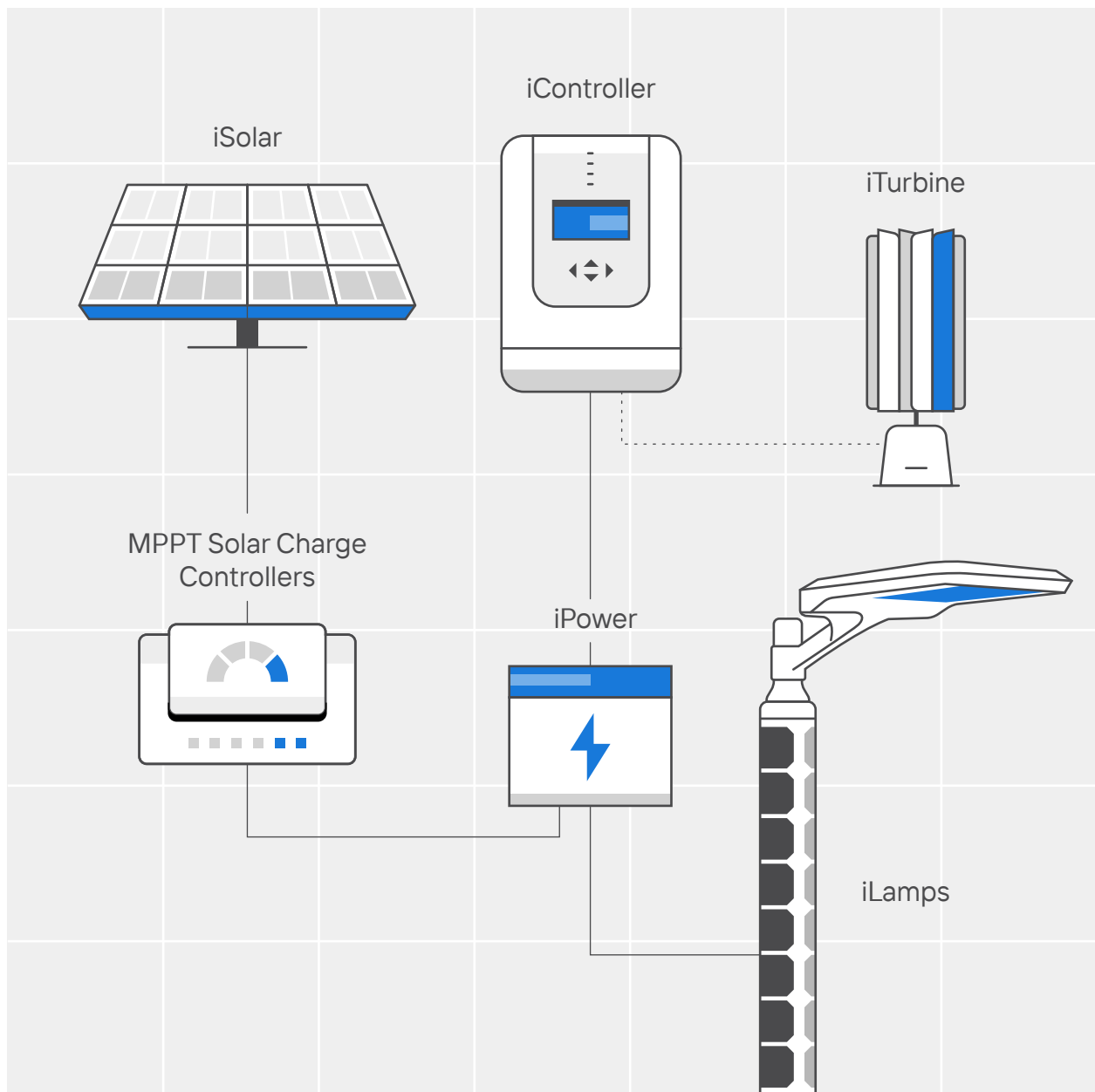
CPG's microgrid system provides a flexible and sustainable solution for the energy needs on a low rate Power as a Service pricing model, with no upfront costs.

By installing the microgrid (CFP001) in the central location preferably using the existing site marked on the map, it is ideally placed to link up directly to lamps SWAN1 - SWAN6 which will then act as modular bridges meaning if one component fails or is removed, the rest of the system will continue to function without it.

By integrating into the microgrid enhanced solar panels, a backup generator, and wind turbine technology, this system will generate power not only from the sun but also from the wind. This ensures continuous power generation and storage, guaranteeing that streetlights 1 - 18 will stay lit all night, even on the darkest winter days.

Microgrid CFP001

iMicro Diagram



iPower IPR005



Usable Energy (100% depth of discharge)	: 10 kWh
Continuous Output Power	: 5000 W
Peak Output Power in Backup (for 10 seconds)	: 7500 W
Peak Roundtrip Efficiency	: >94.5 %
Warranty	: 10 Years
Voltage Range	: 350-450 Vdc

Test Standards

Certification

Cell	: EC 62619
Battery	: IEC 62619, UN38.3
Emissions	: IEC61000-6-1, IEC61000-6-2, IEC61000-6-3
Warranty	: 10 Years
Volt. Range	: 350-450 Vdc

Installation Specifications

Dimensions (W x H x D)	: 790 x 1179 x 250 mm
Weight	: 119 kg
Mounting	: Floor or wall mount
Operating Temperature	: -10 to +50 °C
Enclosure Protection	: IP55 - indoor and outdoor
Maximum Altitude	: 2000 m
Cooling	: Natural convection
Noise at 1m Distance	: <25 dBA

iTurbine ITB001



Designation	: 24V to 48V
Type	: 6.5 KW vertical wind permanent magnet
Weight	: 24.5kg (54lbs)
Max. Power	: 6.5kW
Operating Circuit Voltage	: 0-220V
Current	: 3-Phase
Start Of Charging	: 3m/s
Base Plate Material	: Sheetmetal
Direction Of Rotation	: Clockwise

Test Standards

EN 61000-6-1 (electromagnetic compatibility)

EN 61000-6-3 (electromagnetic compatibility)

Rotor Blades

Material	: Aluminum
Diameter	: 1250 mm (4.10 Feet)
Weight Per Rotor Blades	: 775 g (1.70 lbs)
Direction Of Rotation	: Clockwise
Starting Wind Speed	: 4m/s still (3m/s afterwards)
No. Of Blades	: 3
Max Rpm	: 900
Max Speed	: 50m/s
Noise	: 30 dB

iSolar ISL008



Cell Type	: Mono-crystalline Silicon
Front Cover	: 3.2 mm tempered glass, with anti-reflection coating
Frame	: Black anodized aluminum
Cable	: 4mm-(IEC) 12AWG(UL)
No. of Cells	: 108(6*18)
Junction Box	: IP68, three bypass diodes
Connector	: MC4 compatible
Weight	: 20.5kg+3%
Dimension	: 1722*1134*30mm

Temperature Ratings (STC)

Temperature Coefficient of I_s	: +0.05%/ °C
Temperature Coefficient of V_{oc}	: -0.24%/ °C
Temperature Coefficient of P_{mox}	: -0.29%/ °C

Installation Specifications

Operation Temperature	: -40°C-+85°C
Max. Series Fuse Rating	: 25A
Protection Class	: Class II
V_a and I_s Tolerance	: ±3%
Max. System Voltage	: DC1500V
Max. Static Loading	: Front 5400Pa Back 2400Pa
Hail Test	: 25 mm diameter hail at 23 m/s
Fire Rating	: IEC Class C

iController ICT002



iController Charge Controller

Battery voltage	: 12/24 V Auto
Rated charge current	: 50 A
Nominal PV power, 12 V	: 700 W
Nominal PV power, 24 V	: 1400 W
Maximum PV open circuit voltage	: 100 V
Max. PV short circuit current	: 60 A
Maximum efficiency	: 98 %

Other Specifications

Battery voltage	: 12/24 V Auto Select
Bluetooth sensing	: • BatteryWare Sensing • BatteryWare Monitoring
Self-consumption	: • 12 V : 30 mA • 24 V : 20 mA
Charge voltage 'absorption'	: Default setting: 14,4 V / 28,8 V (adjustable)
Charge voltage 'float'	: Default setting: 13,8 V / 27,6 V (adjustable)
Charge algorithm	: multi-stage adaptive
Temperature compensation	: -16 mV / °C resp. -32 mV / °C
Protection	: • PV reverse polarity • Output short circuit • Over temperature • Bluetooth sensing

Operating temperature	: -30 to +60 °C (full rated-output up to 40 °C)
Humidity	: 95 %, non-condensing
VE.Direct	: See the data communication white paper on our website
Data communication port:	: ENCLOSURE
Colour	: Blue (RAL 5012)
Power terminals	: 16 mm ² / AWG6
Protection category	: IP43 (electronic components), IP22 (connection area)
Weight	: 1,3 kg
Dimensions (h x w x d)	: 130 x 186 x 70 mm

Test Standards

Safety	: EN/IEC 62109-1, UL 1741, CSA C22.2
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Maintenance Contract

Alongside the microgrid system, CPG also offers a comprehensive maintenance contract at no additional cost, maintenance services include, but are not limited to, onsite repair, parts replacement, routine checkups, and optimization of the Equipment. Upon receiving a report on any issue, fault or malfunction, CPG will dispatch a technician or representative to inspect and assess the situation within 72 hours for repair or remedy using replacement parts and components of equivalent quality and function to the original Equipment ensuring uninterrupted service and saving you the hassle of coordinating maintenance work. This warranty does not cover damage due to misuse, neglect, vandalism or modification of the Equipment by parties other than CPG.

Cost Structure

The proposed microgrid installation and maintenance service come at no upfront cost. CPG operates on a 'Power-As-A-Service' model, where you will be billed at a rate of 15p per kilowatt-hour (kWh) generated and used. This cost-efficient model means you only pay for the energy you consume, making it a sustainable and economically viable solution for your needs.

Benefits of the Microgrid System

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RELIABILITY: The microgrid system ensures your solar streetlamps will have a consistent power source to function optimally throughout the night, improving the safety and security of the parking lot.



RESILIENCY: With the addition of a generator and wind turbine, the system is designed to function even in extreme weather conditions when solar power might be insufficient.



SUSTAINABILITY: By harnessing power from renewable resources such as wind and sunlight, the microgrid contributes to reducing carbon emissions, supporting your commitment to environmental sustainability.



COST-EFFICIENCY: With no upfront installation cost and payment only for power consumed, the microgrid system presents a cost-efficient solution for maintaining your lighting infrastructure.



EASY MAINTENANCE: With the CPG maintenance contract, you have a direct line to report any issues, ensuring quick resolution and minimal disruption to your streetlight operation.

Contact page

We are confident that this system, along with the comprehensive maintenance contract, will provide a robust solution to the current challenges you are facing with the solar streetlamps. We look forward to the opportunity to discuss this proposal further and answer any questions you might have.



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