WORLD4SOLAR

SOLAR-DRIVEN POWER SOLUTIONS

COMMERCIAL
PRODUCT PORTFOLIO

OUR VISION

We want to shape the green and resilient future of intelligent energy production through solar power by using available space in the smartest way possible.

As a holistic solution provider of easy-to-install solar carrier systems, we enable our customers to produce clean electric power, without compromising on the original use of the space.

OUR MISSION

WORLD4SOLAR

WELCOME TO OUR WORLD

At World4Solar, we stand at the forefront of innovation, driving a revolution in sustainable living across the United States. Our unwavering commitment to user empowerment sets us apart as pioneers in the clean energy industry, enhancing energy resiliency and independence from traditional power grids.

Imagine a future where solar power and electric vehicles seamlessly integrate, forming a harmonious alliance for a greener world. Our out-of-the-box solar carports with integrated EV chargers and optional batteries make this vision a reality. We empower individuals and businesses alike to harness the sun's abundant energy, not only reducing their carbon footprint but also achieving the financial and practical benefits of off-grid energy independence.

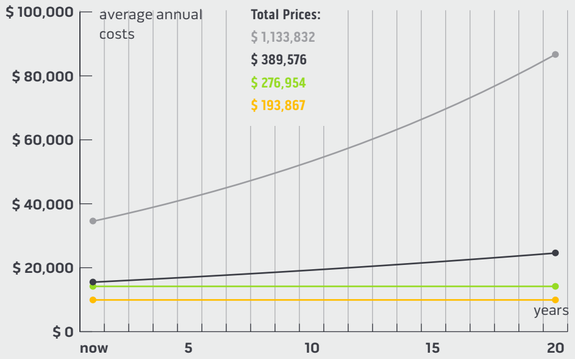
But we don't stop there. Our holistic approach to sustainability extends beyond functionality. We believe in design with a purpose. With customizable options, our solar carports effortlessly blend into your environment, becoming a symbol of responsible living. Sustainability does not have to compromise aesthetics. Sustainability can elevate it!

Joining World4Solar means more than adopting cutting-edge technology. It means becoming part of a thriving community, united by a shared vision of a cleaner, more resilient, and greener future. Together, we champion sustainable practices, inspire one another, and lead the charge towards positive change.

Welcome to World4Solar, where innovation, user enablement, design excellence, and community building converge to create a world that cherishes both progress and the planet. Embrace a brighter tomorrow with us — your key to unlocking a more sustainable and energetically independent future!

WHY WE WILL USE SOLAR POWER

Benefit right from the start:



- Utility Cost (Commercial) in California for 150,000kWh p.a. (Est. 5% Rise p.a.)
- Utility Cost (Commercial) in the U.S. for 122,000kWh p.a. (Est. 3% Rise p.a.)
- Price* of a 93kWp LumaPort system spread over 20 years **
- Price* of a 93kWp LumaPort system spread over 20 years ** (Tax Credit Applied)

* At current regular dealer / distributor pricing (8-2024) for structure + panels, prior to installation

** Equal to an output of 150,000kWh p.a. in California or 122,000kWh p.a. in the U.S. (based on average sun hours)

1. **Most affordable and reliable source of energy available**
2. **Inexhaustible source of energy for a future proof supply**
3. **Democratization and stabilization of energy supply through microgrids and energy independence**
4. **Reduction of the carbon footprint for businesses and communities**
5. **Economic incentives by government and states, e.g. tax credits**

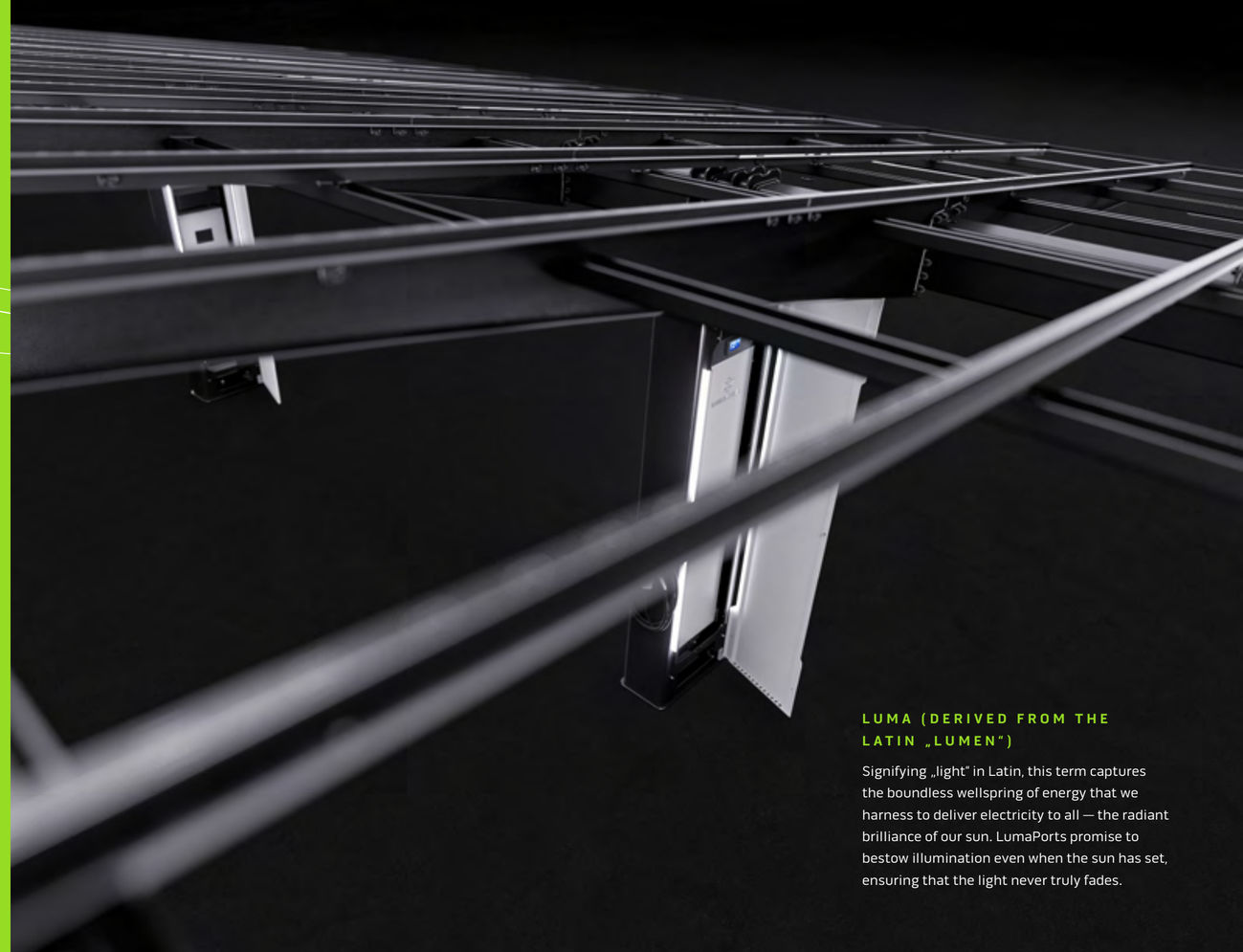
A COMPARISON: SOLAR CANOPY VS. ROOF SOLAR

	SOLAR CARPORT OR CANOPY	CONVENTIONAL ROOF PV SYSTEM
Makes use of more efficient bi-facial solar modules (up to +20%)	✓	✗
Provides maximum visibility as a physical statement for a sustainable behavior	✓	✗
Is independent of the architectural features and orientation of your real estate	✓	✗
Doesn't require alteration of the architectural features of your real estate	✓	✗
Pre-wired and pre-assembled electronic components	✓	✗
Offers design options to suit your individual needs, style and taste in a unified system body	✓	✗
Comes with integrated features such as an EV charger or battery storage to create or support microgrids	✓	✗
Provides shelter to vehicles / EVs or other belongings and protects them from the elements	✓	✗

LUMAPORT

—

EVERYTHING ELSE IS JUST SOLAR.



LUMA (DERIVED FROM THE LATIN „LUMEN“)

Signifying „light“ in Latin, this term captures the boundless wellspring of energy that we harness to deliver electricity to all — the radiant brilliance of our sun. LumaPorts promise to bestow illumination even when the sun has set, ensuring that the light never truly fades.

THE MOST VERSATILE, SOLAR-DRIVEN POWER SOLUTION

LUMAPORT

UNIFIED SYSTEM

The LumaPort is a sleek, all-in-one system with every component seamlessly integrated into its structure. It eliminates the need for bulky external inverters or battery containers, ensuring a neat installation and minimal use of space. The system also allows for the integration of EV chargers.

SOLAR POWERPLANT

In a world darkened by power cuts and drained by high bills, LumaPort stands as a beacon. Save on expenses, champion eco-friendly energy, and stay illuminated when others falter. Reduce your utility bills and vastly improve your carbon footprint.

MODULAR DESIGN

The LumaPort is a series-produced, modular system designed to adapt to individual and site-specific needs, ensuring flexibility in the amount of energy produced. It imposes no limits on project size, and all components are interconnected to enhance efficiency.

ENERGY STORAGE

The optional, integrated battery storage ensures your energy supply on cloudy days, during night times or even blackouts. Plus, if you are on time-of-use billing, you can use battery power to drastically reduce your electric bills. This transforms your parking space into a power backup facility.

LUMAPORT IS YOUR KEY TO ENERGY INDEPENDENCE

EASY TO INSTALL

Pre-assembled and pre-configured turnkey solution. Reduces required man power on-site and simplifies permitting procedures.

FLEXIBLE SETUP

Stand-alone operation or connected to the local power grid to earn credit on your electric bill (check with your local utility)

PERFORMANCE

LumaPort was built to maximize solar energy production and can generate up to 640W per foot.

WORKS WITH MANY COMPONENTS

While we recommend certain components, parts like the inverter or panels can be chosen to your liking with a wide range of compatibility.

AMBIENT LIGHTS

Built-in ambient lighting provides multiple lighting concepts via app control, from illuminating the parking space to a parking guidance system.

INTEGRATED ENERGY STORAGE

Optional, built-in battery storage of 36 kWh or 72 kWh to maximize energy arbitrage and provide emergency backup power.

RAIN AND SUN PROTECTION

The gap-free solar roof design protects vehicles and other belongings from sun and rain.

UP TO 30% FEDERAL TAX CREDIT

LumaPort qualifies for federal tax credits of up to 30% of the costs and additional state credits may be available.

BUILD QUALITY

High-quality materials and workmanship provide 20 years warranty for the structure of our products.

LUMAPORT SYSTEM CONFIGURATION

PANELS

LumaPort is compatible with a variety of panels, they only have to meet size require-ments to fit into the system.

WING SEGMENT

You can add Wing Segments to scale your system, choosing from our three different Wing Segment depths.

COLUMN

The columns hold the Wing Segments and ensure the structural stability of the system. They also hold all integrated electronic parts, such as the inverter, the WIFI module or batteries.

WING SEGMENTS

LUMAPORT 5

Output per Wing Segment: **2.40 kWp**
Roof Structure Covered Depth: **16.9 ft**
Wing Segment Width: **7.5 ft**

LUMAPORT 7

Output per Wing Segment: **3.20 kWp**
Roof Structure Covered Depth: **22.3 ft**
Wing Segment Width: **7.5 ft**

LUMAPORT 10

Output per Wing Segment: **4.80 kWp**
Roof Structure Covered Depth: **33.8 ft**
Wing Segment Width: **7.5 ft**

LUMAPORT COLUMN CONFIGURATION

SECONDARY CONFIGURATION
OPTION 1

PRIMARY CONFIGURATION
OPTION 2

BATTERY BLOCK

It can store up to 72kWh of power and comes with its own, integrated battery management system.

COMBINER BOX

Optional, but required if more than two battery systems are connected to the inverter.

HYBRID INVERTER

A 3-Phase hybrid inverter to handle power distribution and DC to AC conversion, if required.

EV CHARGER

Optional Level 2 EV Charger that can be directly installed on the outside of the column.

All components of your chosen configuration come pre-installed and pre-wired to avoid installation errors and reduce installation time.

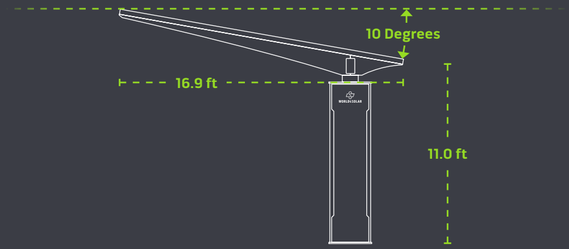
COLUMN CONFIGURATION	PRIMARY (INVERTER)
Inverter Type	**60kW, Hybrid**
MPPT Voltage Range	**150 – 850V**
Max. Input Current	**4 x 40A**
Max. Input Strings	**4**
Rated Grid Voltage	**3-Phase 480V / 60Hz**
Ingress Protection	**Type 4X**
Safety / EMC Standard	**IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-3, 2023-NFPA 855, 2023-NFPA 70**
Grid Connection Standard	**UL1741SA, UL1741SB, IEEE1547-2018, UL1699B, UL1998, FCCPart15ClassB, California Rule21, NEC 690.12-2020, CAN/CSA C22.2107.1-1**

COLUMN CONFIGURATION	SECONDARY (BATTERY)
Capacity per Column	**72kWh**
Battery Type	**LFP (LiFePO4)**
Max. Charge / Discharge Current Recom. Charge / Discharge Current	**75A / 26.88kW** (Continuous Use) **50A / 17.92kW** (Continuous Use)
Cooling / Heating	**Forced Air / Integrated Heating Plates**
Ingress Protection	**Battery Block: IP67 BMS: IP54**
Compliance	**UL9540A, CEC, UL1973, CE-EMC, CB62619, IEC62040, IEC63056, VDE2510**
Nominal Charging Voltage	**784 – 816VDC**
Nominal OCV	**716.8VDC**
Operating Ambient Temperature Storage Temperature	**-22°F – 113°F / -30°C – 45°C -4°F – 122°F / -20°C – 50°C**

THE MOST FLEXIBLE

LUMAPORT 5

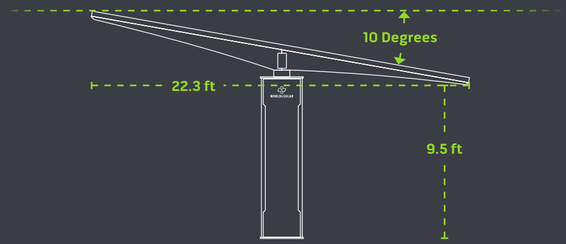
Wing Segment Width:	**7.5 ft**
Wing Segment Tilt Angle:	**10 Degrees**
Output per Wing Segment:	**2.40 kWp**
Roof Structure Covered Depth:	**16.9 ft**
Drive-In Height:	**11.0 ft**



THE PERFECT FORMAT

LUMAPORT 7

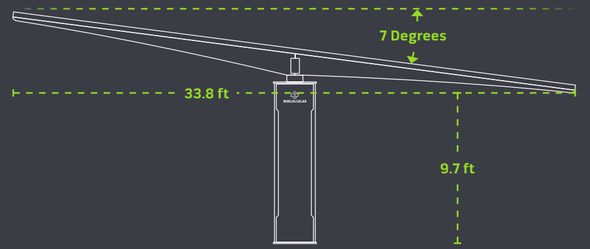
Wing Segment Width:	**7.5 ft**
Wing Segment Tilt Angle:	**10 degrees**
Output per Wing Segment:	**3.20 kWp**
Roof Structure Covered Depth:	**22.3 ft**
Drive-In Height:	**9.5 ft**



THE PRODUCTION POWERHOUSE

LUMAPORT 10

Wing Segment Width:	**7.5 ft**
Wing Segment Tilt Angle:	**7 degrees**
Output per Wing Segment:	**4.80 kWp**
Roof Structure Covered Depth:	**33.8 ft**
Drive-In Height:	**9.7 ft**



4 UNIQUE FEATURES – WHY LUMAPORT IS THE BEST SYSTEM

Being able to place columns of a canopy PV system freely along a given line is revolutionary to the industry. Imposing a minimal footprint on your site of installation, gives you maximum flexibility to match a LumaPort system to your individual, spatial requirements. Varying distances between columns are possible and you can decide to **reduce the amount of columns to save costs or use more columns to benefit from their integrated components**, like batteries, inverters or built-in EV chargers.

MOVABLE COLUMNS

SLOPE COMPENSATION MECHANISM

A seasaw-mechanism that holds the crossbar of a connected Wing Segment enables LumaPorts to **compensate for up to 2° of slope** along the length of an array with multiple Wing Segments and columns. This makes LumaPort a suitable system for hilly areas and decreases heavy site preparation work like soil layer removing to flatten an area that may be required for conventional canopy PV systems.

The sophisticated structure of the LumaPorts was built in a way that **all cables are hidden** within it. This guarantees for a clean presentation, even from below and also protects cables and wiring to make them less prone to environmental damage.

HIDDEN CABLE MANAGEMENT

WATERTIGHT, GAPLESS ROOF DESIGN

Conventional canopy PV systems may sub-structures with the PV panels placed on top to ensure the integrity and impermeability of their systems. LumaPorts use a special, shock-absorbing sealant in between panels, so the **PV panels can be the actual roof of the system – and it's watertight**! This saves structural materials, resulting in lower costs and allows the bi-facial panels to produce extra energy when reflected light hits them from below. It will keep everything beneath protected from the elements like rain, hail or harsh sunlight.

GO BEYOND ENERGY PRODUCTION
WITH OUR ADD-ON OPTIONS

REMOTE PRODUCTION & DISTRIBUTION TRACKING

Track your production & distribution of generated energy from everywhere, anytime through our App. This allows you to see exactly how much your system is producing at specific times of the day and align that with demand prices to sell power to the grid for the highest benefit. It also allows your installing partner to inspect system functionality remotely based on your reports to identify potential production declines much earlier than through mandatory maintenance checks.

INTEGRATED LED-LIGHTING SYSTEMS

We offer the most sophisticated integration of LED lighting systems within a solar canopy system on the market, eliminating messy wiring or additionally required structures. Illuminate your business or community and shine, even when the sun is down and benefit from the added security.

BUILT-IN LV2 EV CHARGER

Make your generated power usable right where it's produced and offer resilient EV charging to your employees, residents, or clients, winning over a promising customer segment. We partner with a wide range of commercial charging suppliers, allowing you to choose the perfect fit for your specific needs.

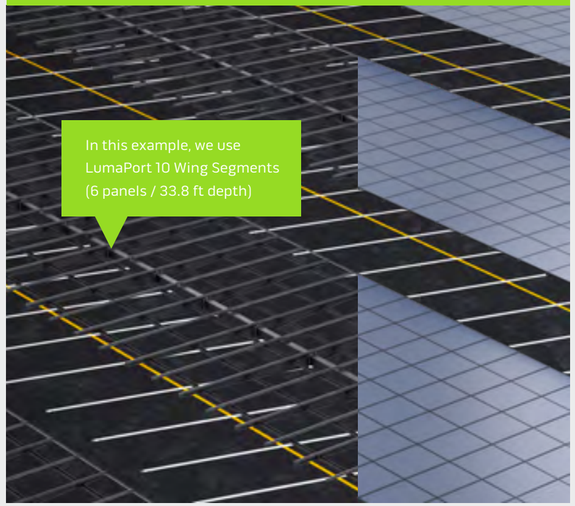
THE LUMA PORTFOLIO

SEGMENT	LUMAPORT 5	LUMAPORT 7	LUMAPORT 10
Solar Power (Max)	**2.40 kWp**	**3.20 kWp**	**4.80 kWp**
Solar Roof (Gap free)	**125 sq ft**	**167 sq ft**	**250 sq ft**
Min. Drive-through Clearance	**11.0 ft**	**9.5 ft**	**9.7 ft**
Wing Segment Width	**7.5 ft**	**7.5 ft**	**7.5 ft**
Roof Structure Covered Depth	**16.9 ft**	**22.3 ft**	**33.8 ft**
Wing Segment Tilt Angle	**10 degrees**	**10 degrees**	**7 degrees**
Minimum System Size	**5 Wing Segments / 2 Columns**	**5 Wing Segments / 2 Columns**	**5 Wing Segments / 2 Columns**
Design Standard		**ASCE 7-16**	
Material Structure		**Bulletproof, Black Steel (Powdercoated)**	

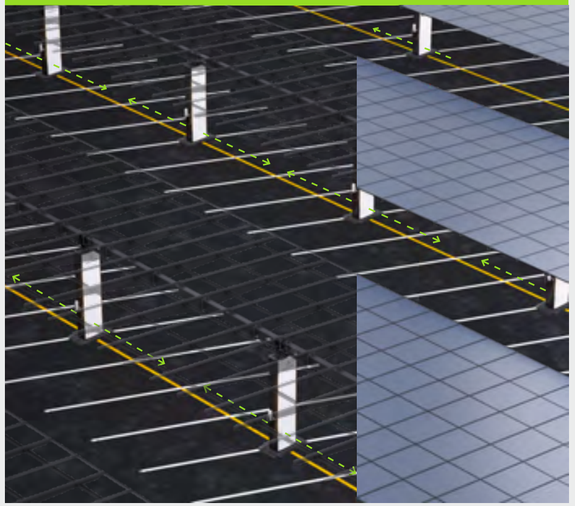
4 SIMPLE STEPS — A LUMAPORT PROJECT DESIGN

CREATE THE CANVAS FOR YOUR POWER PLANT

MAXIMIZE YOUR ENERGY YIELD



USE SPACE EFFICIENTLY & MINIMIZE COSTS



POWER YOUR SYSTEM UP TO A MICROGRID

1. SPACE EVALUATION

Evaluate the available parking or free space you want to cover with LumaPorts. This means the total width of your space, as well as the amount of rows you want to cover and the distance between these rows.

2. CHOOSE YOUR WING

Depending on the depth you want to cover, choose your wing model between LumaPort 5, 7 or 10 (All at 7.5 ft width). If space is not the issue, you may decide by required power output, with LumaPort 5 with the lowest and LumaPort 10 with the highest output.

3. PLACE THE COLUMNS

The columns can be placed freely, depending on your individual site requirements with only little restrictions in terms of maximum spacing between two columns (approx. 30 feet / 4 segments) or the minimum distance to each of the ends of an array (10 inches).

4. EQUIP THE COLUMNS

Columns guarantee the structural stability of the LumaPort and can hold either inverters or batteries that are interconnected with each other (a maximum of 8 batteries may be connected to one inverter). They can also be equipped with EV Chargers.

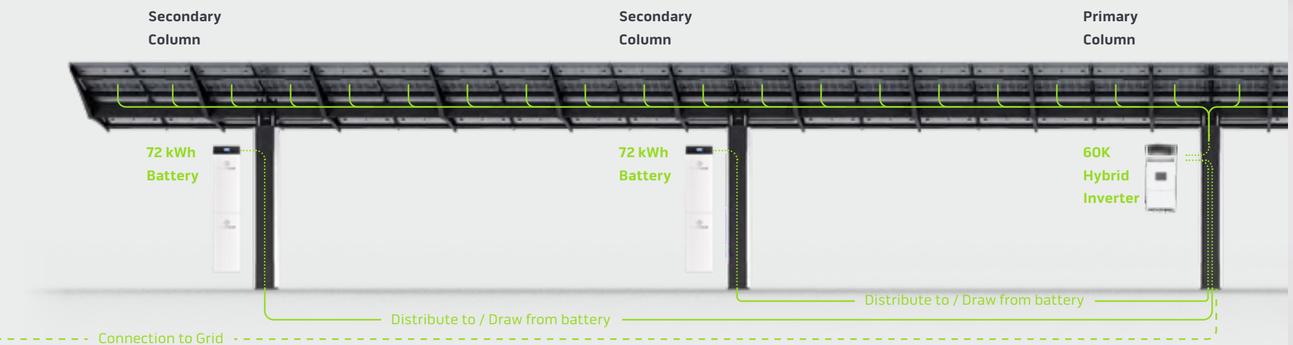
NEVER WORRY ABOUT THE GRID AGAIN. EVER.

PRODUCE POWER

DISTRIBUTE POWER

STORE POWER

LumaPort combines every component required for an independent microgrid in a unified, integrated system. This makes it the most straightforward solution for scalable, reliable microgrid infrastructures that can either be connected to the grid or function completely autonomous.



LUMAPORT AS A MICROGRID SOLUTION...

..IS INDEPENDENT

LumaPorts efficiently **generate** and **distribute** energy from a single, unified system. This capability allows both communities and businesses to gain independence from an unreliable grid, utilizing self-produced, clean energy consistently. By doing so, you can reduce reliance on fluctuating utility rates and future-proof your environment.

...IS RELIABLE

When the grid fails or overheats, the **integrated energy storage** in LumaPort steps in to support your business or community, ensuring that critical systems continue to operate and living spaces remain functional. It shields you from the disruptions caused by blackouts during events like hurricanes, providing not just peace of mind but also potential economic benefits.

SYSTEM:	LUMAPORT 7
WING SEGMENTS:	122
COLUMNS:	30
PRIMARY COLUMNS:	6
SECONDARY COLUMNS:	24

LUMAPORT AS A TURNKEY POWER SOLUTION FOR AN ENERGY AUTONOMOUS APARTMENT COMPLEX

Modern residential development projects frequently need to meet intricate sustainability requirements to secure permits. Consequently, shifting the entire power supply of a project from a utility company to an independent microgrid system like LumaPort is a wise move – and a smart investment:

This approach allows you to provide eco-friendly and grid-independent living conditions to future tenants. Additionally, you can generate new revenue streams by offering sheltered parking and by billing tenants for utility costs. Once your power solution is fully paid off, these revenues become pure profit.

- FREE YOUR PROPERTY FROM A FRAGILE GRID
- OFFER BLACKOUT-FREE & GREEN LIVING CONDITIONS
- YOU DETERMINE THE UTILITY PRICE FOR YOUR TENANTS
- EXTRA REVENUE THROUGH SHELTERED PARKING LOT OFFER FOR TENANTS

SCENARIO SETUP

System: **LumaPort 7**

State: **California**

Sunshine: **5.4 hours** (average per day)

Business: **Apartment Complex** (80 units)

Complex Power Requirement:
62,600 kWh / month (42,000 kWh + 20,600 kWh)

Upcharge for Bundled Parking Lot:
$40 / month / unit (@ 80 Units)

Utility Cost (Commercial Tarif):
$0.23 / kWh

LumaPort 7 Backup System Production:
390 kW @ 122 Segments (768,690 kWh p.a.)

LumaPort 7 Backup System Storage:
1,728 kWh @ 24 batteries (Power Backup for 20h continously)

Costs Saved Through System Production:
$172,776 p.a. (@ 751,200 kWh * $ 0.23)

TIMEFRAME	COST SAVINGS THROUGH USED ENERGY	+ CHARGE FOR BUNDLED, SHELTERED PARKING LOTS
Over 5 years	**$917,291** @ 751,200 kWh per year (+ 3% p.a.)	+ **$192,000** (@ 80 parking lots)
Over 10 years	**$1,980,683** @ 751,200 kWh per year (+ 3% p.a.)	+ **$384,000** (@ 80 parking lots)
Over 20 years	**$4,642,555** @ 751,200 kWh per year (+ 3% p.a.)	+ **$768,000** (@ 80 parking lots)

SYSTEM:	LUMAPORT 10
WING SEGMENTS:	360
COLUMNS:	168
PRIMARY COLUMNS:	84
SECONDARY COLUMNS:	84

LUMAPORT AS A POWER BACKUP SYSTEM FOR A DEEP LEARNING DATACENTER

Datacenters currently consume a significant portion of global energy — approximately 3% — and are projected to use even more as deep learning facilities and A.I.-driven data centers expand to support large corporations. These facilities rely on a dependable power supply, as outages and downtime can result in substantial costs.

Consequently, it is crucial to have a future-proof power solution that not only offers backup for potential outages — a leading cause of data center downtime — but also helps reduce operational costs by generating usable energy.

PARTLY OFFSET HIGH OPERATIONAL COSTS

ADD A RELIABLE POWER BACKUP TO AVOID DOWNTIMES

DECREASE CARBON FOOTPRINT

SCENARIO SETUP

System: **LumaPort 10**

State: **New York**

Sunshine: **3.8 hours** (average per day)

Business: **A.I. Datacenter** (2,500sq ft)

Business Power Requirement:
5,000 kW (43,800,000 kWh p.a.)

Utility Cost (Industrial Tarif):
$0.075 / kWh ($3,285,000 p.a. + 2% p.a.)

Average Costs Incurred by Downtimes:
$336,000 / hour (2.3h / year = $750,400 p.a.)

LumaPort 10 Backup System Production:
1,728 kW @ 360 Segments (2,396,955 kWh p.a.)

LumaPort 10 Backup System Storage:
6,048 kWh @ 84 batteries (Power Backup for 1h+ continously)

Costs Saved Through System Production:
$179,755 p.a. (2,396,955 kWh * $ 0.075)

TIMEFRAME	COST SAVINGS THROUGH USED ENERGY	COST SAVINGS THROUGH USED ENERGY + BACKUP SYSTEM
Over 5 years	**$935,452** @ 2,396,955 kWh per year (+ 2% p.a.)	**$2,811,452** (@ 2,396,955 kWh per year @50% Downtime avoided)
Over 10 years	**$1,968,267** @ 2,396,955 kWh per year (+ 2% p.a.)	**$5,720,267** (@ 2,396,955 kWh per year @50% Downtime avoided)
Over 20 years	**$4,367,573** @ 2,396,955 kWh per year (+ 2% p.a.)	**$11,871,573** (@ 2,396,955 kWh per year @50% Downtime avoided)

MAKE YOUR BUSINESS FUTUREPROOF

LUMAPORT FOR BUSINESSES

LUMAPORT AS YOUR ENERGY SOLUTION MEANS...

1 UNINTERRUPTED ENERGY ACCESS

With LumaPort's integrated battery storage, experience the peace of mind that comes from grid independence. Keep your essential systems like AC, servers and security running smoothly during outages.

2 SLEEK, SPACE-SAVING DESIGN

LumaPort's single-column cantilever design minimizes the system's footprint on your property while maximizing energy yield through optimal orientation and system sizing.

3 SEAMLESS INTEGRATION

From gap-free solar roofing that protects against the elements to hidden cable management systems, every component is designed to offer a clean, organized aesthetic without sacrificing functionality.

4 ROBUST DURABILITY

Built to withstand up to 150mph winds, the LumaPort offers unmatched resilience. Using top-shelf components and materials, it is the ideal system for harsh environments and ensures a long lifespan.

SELL & INSTALL SOLAR AT EASE

LUMAPORT FOR INSTALLERS

OFFERING & INSTALLING LUMAPORT MEANS...

1 EASY PRE-INSTALL PROCESS

Thanks to our nationwide permitting partners, you as the installer will only enter the field once all permitting is done and you just have to take care of the on-site installation. This saves you time and makes project planning much more predictable.

2 EFFORTLESS INSTALLATION

Pre-installed electrical components and a modular system design reduce onsite labor and complexity, making installations swift and straightforward.

3 CUSTOMIZABLE SOLUTIONS

Tailor systems to meet diverse customer needs without the hassle of mix-and-matching different components with a single, unified system that just works.

4 MINIMAL MAINTENANCE

The durable and well-protected design decreases the need for frequent maintenance, allowing you to offer better service with less hassle.

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