



PRODUCE YOUR OWN ENERGY AT A CONTROLLED COST WITHOUT ALTERING THE LANDSCAPE!

TRAFFIC-READY AND INTEGRATED SOLAR POWER PLANT

Wattway Plus is a turnkey **photovoltaic solution** that enables renewable energy to be produced by **pooling the land used for** seaport infrastructure.

Integrated into **quays, jetties, walking areas**, forecourts and car parks, Wattway Plus is a way of developing your **internal consumption potential** on a massive scale by **consuming your own electricity produced**. This electricity, injected into your buildings (harbour master's office, sanitary facilities, warehouses, etc.), powers your everyday electrical appliances.



Traffic-ready photovoltaic power plant integrated into the quays and pontoons of a marina.

It is now possible to produce renewable energy **without altering the landscape of tourist sites**. Wattway Plus is a solution that visually preserves your estate while **controlling your energy bills**, particularly during the tourist season.

THE BENEFITS OF THE SOLUTION



A solution for discreet architectural and landscape integration



A solution when your roof space is limited or saturated



Optimization of land resources



No wind factor



Avoids the need to degrade new surfaces



Enables to reduce the carbon impact of your activities



Non-slip system



Without reverberation

WATTWAY PLUS INSTALLATION AREAS



Quays, jetties, pontoons, walking areas, forecourts, car parks and cycle paths are just some of the areas available for installing Wattway Plus.

PRODUCTION POTENTIAL OF A SEAPORT INSTALLATION

This study was carried out on a sample of 9 ports in Europe. The surface areas shown are estimated based on an average of several ports of similar size. Estimated production is based on sunshine levels in the towns mentioned.

AVERAGE SURFACE AREA (m ²)/INSTALLATION AREAS	PORT 3,000 to 5,000 spaces (e.g.: Port Camargue, Fr)	PORT 1,000 to 3,000 spaces (e.g.: La Trinité, Fr)	PORT 500 to 1,000 spaces (e.g.: Port d'Arechi, Italy)
Pontoons & booms	12,219	4,223	3,434
Quays & forecourts	26,303	14,406	10,530
Car parks	23,000	9,577	4,512
Walkways & jetties	13,158	4,092	3,792
TOTAL SURFACE AREA (M²)	74,680	32,298	22,269
EQUIVALENT PRODUCTION WATTWAY (MWh/year)	15,701	5,704	5,196
EQUIVALENT TO ENERGY CONSUMPTION IN NUMBER OF DWELLINGS *	1,570	570	519

*Assumption: The average electricity consumption for a 4-person household with a 100 m² house is 10,000 kWh per year. (Source: ENGIE)

475 GC MODULE

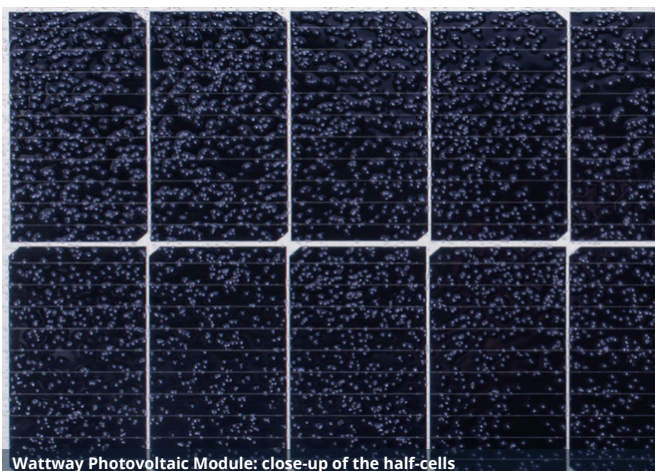
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WATTWAY PLUS COMPATIBLE SOLUTION

MAKE THE MOST OF YOUR SPACE FOR POWER GENERATION

Colas has created Wattway, a trafficable photovoltaic module for pooling transport infrastructures to generate electricity while still catering for all types of vehicle transport.

The modules are very thin and resistant and are bonded/fixed directly to the existing substrate. The surface of the module is textured to give it the grip properties of a conventional road surface.



Wattway Photovoltaic Module: close-up of the half-cells

Applications: trafficable photovoltaic modules for use on transport infrastructures such as car parks, pavements, cycle paths and low-traffic roads.



A 27 kWp power plant visually integrated in a village car park (France)

BENEFITS OF WATTWAY PLUS



A discreet architectural and landscape integration solution



Limits environmental impact and avoids soil artificialisation



Non-invasive, placed on top of the existing infrastructure

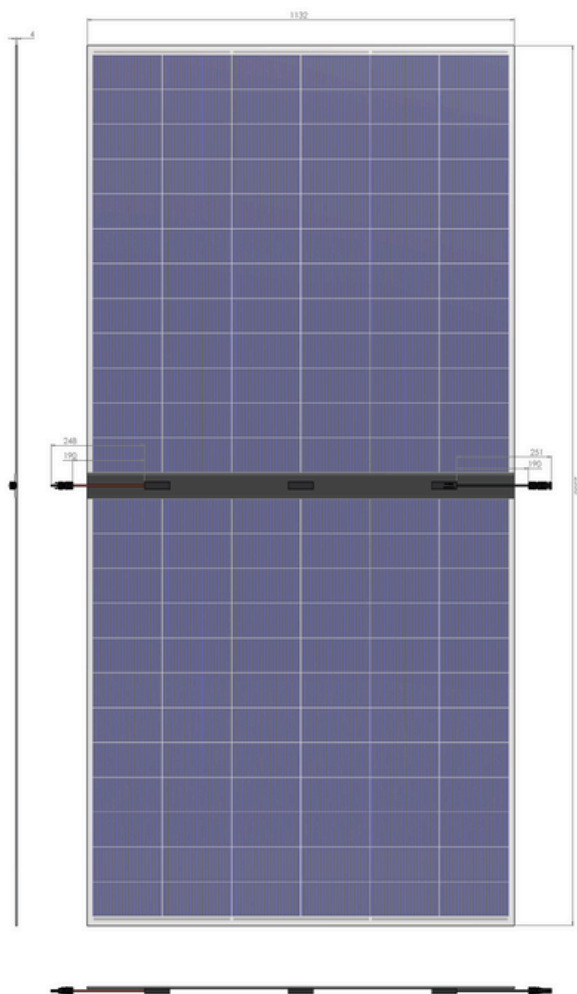


Resilient technology, resistant to the vagaries of the weather, traffic-ready



Quick: simplified administrative formalities and easy installation

DIMENSIONS



PHYSICAL CHARACTERISTICS

Dimensions (L x W)	2338 mm x 1132 mm
Power generating surface area	2.39 m ²
Thickness	4.4 mm
Weight	17 kg
Number of cells	144 1/2 M10 cells
Type of cells	Monocrystalline P-type PERC
Connectors	MC4
Cable length	190 mm
Junction box	3 bypass diodes
Frame	No
Backsheet colour	Transparent
Type of mounting	Bonded to asphalt or concrete
Electrical safety	Classe II - IP68
Traffic resistance ¹	1 million wheel passes 13T
Load ² and impact resistance	IK 7 / IK10 Hail test: 2 Joules Indentation at 20°: 700 Newton
Adhesion	SRT > 50 PMT > 0.6 in accordance with the 2015-19 Directorate-General for Infrastructure, Transport and Mobility (DGTIM) / DIT circular

EFFICIENCY AND TEMPERATURES

Cell efficiency	20%
Temperature (°C)	-40° / +85°
Coeff. Temp. Power (P _{mpp})	-0.38% / °C
Coeff. Temp. Voltage (V _{oc})	-0.36% / °C
Coeff. Temp. Current (I _{sc})	+0.07% / °C
NMOT	-

¹ This module uses encapsulation identical to the Wattway module certified in mid-2024, the only photovoltaic road module to have obtained IEC certification.

² IK7 for the cells / IK10 for the active parts of the panel.

³ The maximum system voltage depends on the conditions of use (traffic, public access, etc.) and must be specified by the customer.

PHOTOVOLTAIC CHARACTERISTICS

Rated power	476 Wc
Output power tolerance	+/-5 W
Voltage at rated power (V _{mpp})	43.7 V
Current at rated power (I _{mpp})	10.9 A
Open circuit voltage V _{oc} (V)	49.0 V
Short-circuit current (I _{sc})	11.5 A
Maximum system voltage ³	1000 V / 120 V
Maximum reverse current	30 A



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BOOST YOUR ENERGY PRODUCTION BY MAKING THE MOST OF YOUR SPACE!

TRAFFIC-READY AND INTEGRATED SOLAR POWER PLANT

Wattway Plus is a turnkey **solar solution** enabling renewable energy production at a competitive price **by pooling the land of airports transport infrastructures**.

Wattway Plus can be installed in the airside area on service roads, in the vicinity of express aircraft parking areas and around taxiways, or in the landside area in car parks, pedestrian walkways and parvis. It is a way of developing your self **consumption potential**. The electricity is fed into your local buildings (terminals, shops, offices, warehouses, etc.) to power your everyday electrical appliances.



Traffic-ready photovoltaic power plant on a service road in the airport's airside area.

By using a **new surface** on your airside and landside areas, you can extend your photovoltaic production by **optimizing your land, without additional soil sealing**. Wattway Plus is a solution with no wind factor and without reverberation that meets **the growing energy needs of your activities**.

THE BENEFITS OF THE SOLUTION



No wind factor



Without reverberation



Non-slip system



Enables not to degrade your airport grasslands



Enables to reduce the carbon impact of your activities



A solution when your roof space is limited or saturated



Optimisation of land resources



Resilient technology

WATTWAY PLUS INSTALLATION

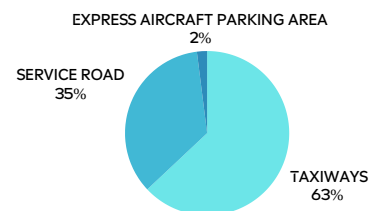


Service roads, vicinity of express freight parking areas, taxiways and visitor car parks are all areas where Wattway Plus can be installed.

PRODUCTION POTENTIAL OF AN AIRPORT INSTALLATION

AVERAGE SURFACE AREA (sqm) / INSTALLATION AREAS	AIRPORT More than 60 million passengers/year (e.g.: Madrid)	AIRPORT Between 30 & 60 million passengers/year (e.g.: Rome)	AIRPORT Between 10 & 30 million passengers/year (e.g.: Nice)
AIRSIDE (service roads, vicinity of express aircraft parking areas and taxiways)	45	24	10
LANDSIDE (visitor car parks)	15	10	7
TOTAL AREA (sqm)	600,000 148 acres	340,000 84 acres	170,000 42 acres
EQUIVALENT PRODUCTION WATTWAY (MWh/year)	139	75	37

This study was carried out on a sample of 12 airports in Europe. The surface areas shown are estimated based on **an average of several airports of similar size**. Estimated production is based on sunshine levels in the towns mentioned.



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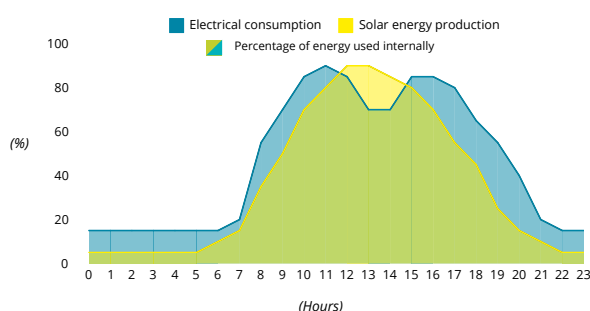


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GENERATE YOUR OWN ENERGY WITH A TRAFFIC-READY SOLAR POWER PLANT

Wattway Plus is a **turnkey solar solution** installed on your transport infrastructure. **Generate your own renewable energy locally** for self consumption purposes.



By using the areas available in your car parks, pavements, cycle paths, parvis and pontoons, **you can increase your potential for self consumption.**

Wattway Plus solar panels are robust, **installed on the ground on top of a paved surface** (asphalt, concrete) and **traffic-ready for vehicles.** They can be used alone or in conjunction with other photovoltaic systems.



280 kWp traffic-ready photovoltaic power plants on cycle paths.
Estimated production of 160 kWh/year (Netherlands.)



27 kWp power plant - Visually integrated in a village car park (France).

THE BENEFITS OF WATTWAY PLUS



Production of renewable energy with direct distribution



Optimisation of land resources



A solution for discreet architectural and landscape integration



Limits environmental impact, avoids soil sealing



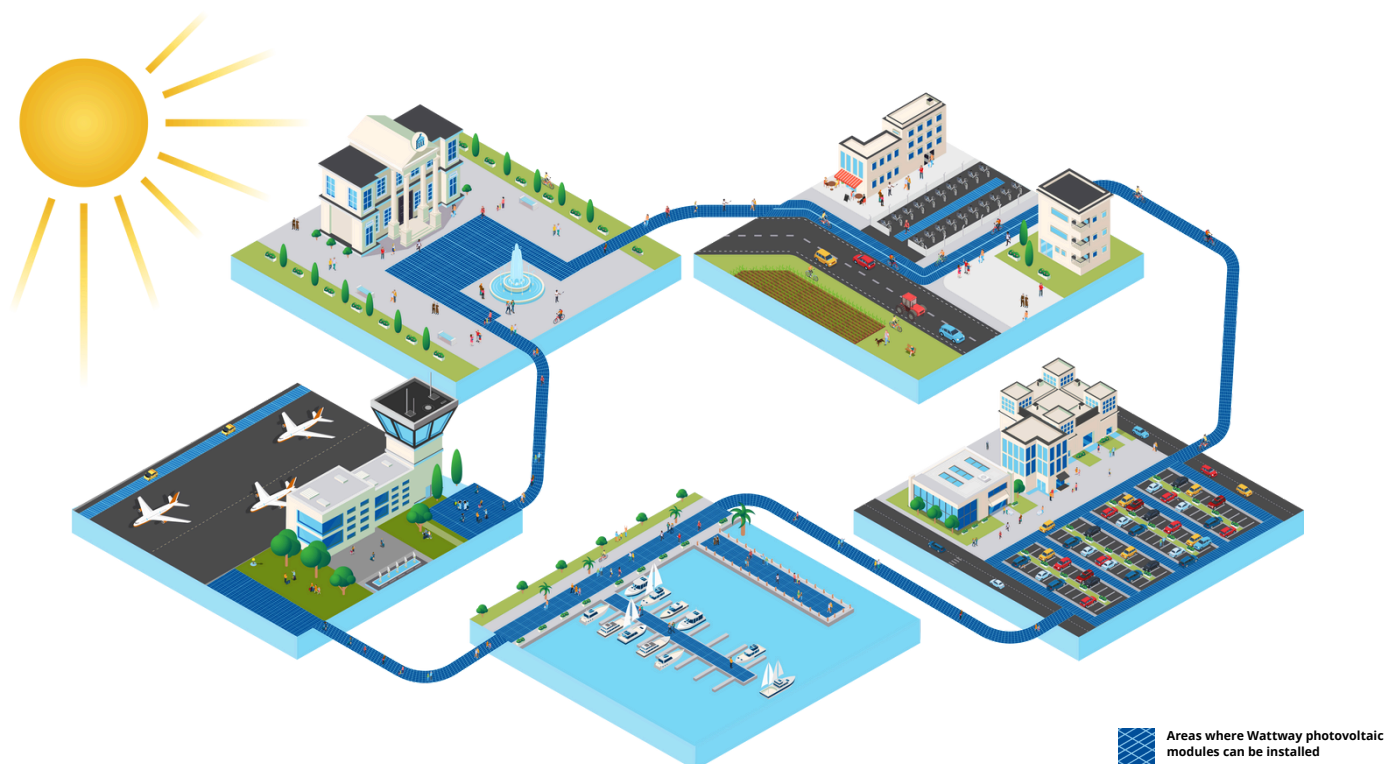
Non-invasive, placed on top of existing infrastructure



Resilient technology, resistant to traffic and extreme weather conditions



Quick: simplified administrative formalities and easy installation



Car parks, cycle paths, pedestrian walkways, parvis, forecourts, airports, pontoons and maritime quays, station platforms, emergency lanes, etc. are all areas where Wattway Plus can be installed.



“Wattway can be installed quickly. The potential of this solution is significant and will help reduce our carbon footprint. It's very positive.”

John HIBBARD - Director of Operations, Georgia Department of Transportation (USA)



A RENEWABLE AND LOCAL SOLUTION

Wattway Plus is an eco-designed solution that limits its carbon impact to 90 g eq. CO₂ per kWh produced (making it more efficient than the European and worldwide energy mixes), and produced in Europe. What's more, its recycling rate, after an estimated life of between 15 and 25 years, depending on the level of traffic (type of vehicle, flow, speed), is 99%, via a channel specifically set up for its reprocessing.



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The Colas Group, one of the world's leading players in transport infrastructure, now boasts unique expertise in traffic-ready photovoltaic coating technology, with more than 150 sites around the world. This know-how is the result of more than 10 years of development, in collaboration with the French National Institute for Solar Energy INES, and is protected by numerous patents. Wattway Plus modules are certified by the international IEC standard, which attests to the same level of quality and performance as traditional photovoltaic panels.



PRODUCE YOUR OWN ENERGY WITHOUT ALTERING THE LANDSCAPE!

TRAFFIC-READY AND INTEGRATED SOLAR POWER PLANT

Wattway Plus is a turnkey **photovoltaic solution** that enables renewable energy to be produced at a competitive price by **pooling the land used for transport infrastructure**.

Integrated into cycle paths, Wattway Plus is a way of developing your **internal consumption potential** on a massive scale by **consuming your own electricity produced**. This electricity is fed into your buildings (Town hall, school, library, aquatic centre, etc.) to power your everyday electrical appliances.



Netherlands, 280 kWp traffic-ready photovoltaic power plants on cycle paths, estimated production of 160 kWh/year.

By using a **new surface** such as your cycle paths, you can extend your photovoltaic production by **optimizing your land, without additional soil sealing**. Wattway Plus is a solution that visually preserves your landscape, while meeting the **growing energy needs** and **keeping your residents' bills under control**.

THE BENEFITS OF THE SOLUTION



Optimisation of land resources



A solution for discreet architectural and landscape integration



Avoids additional soil sealing



Non-slip system



A solution when your roof space is limited or saturated



Enables to reduce the carbon impact of your activities



No wind factor



Without reverberation

WATTWAY PLUS INSTALLATION AREAS



Wattway Modules
cycle paths

Wattway Modules
urban areas

Injection of the
energy produced

Cycle paths, pedestrian walkways, pavements, etc. are all areas where Wattway Plus can be installed.

PRODUCTION POTENTIAL OF A CYCLE PATH INSTALLATION

	CYCLE PATH ATHENS	CYCLE PATH SEVILLE	CYCLE PATH MONTPELLIER
ROUTE (km)	15	5	2
EQUIVALENT PRODUCTION WATTWAY (MWh/year)	8,025	2777	965
EQUIVALENT TO ENERGY CONSUMPTION IN NUMBER OF DWELLINGS *	803	278	97

*Assumption: The average electricity consumption for a 4-person household with a 100 m² house is 10,000 kWh per year. (Source: ENGIE)



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CONTROL YOUR ELECTRICITY BILLS WITHOUT ALTERING YOUR ESTATE!

TRAFFIC-READY AND INTEGRATED SOLAR POWER PLANT

Wattway Plus is a turnkey **photovoltaic solution** that enables renewable energy to be produced at a competitive price by **pooling the land used for parvis. Integrated into forecourts, parvis, pedestrian areas** and car parks, Wattway Plus is a way of developing your **internal consumption potential** on a massive scale by **consuming your own electricity produced**. This electricity is fed into your buildings (Town hall, school, library, aquatic centre, etc.) to power your everyday electrical appliances



Integrated photovoltaic power plant on the parvis of a protected monument.

By using a **new surface** such as your parvis, you can extend your photovoltaic production by **optimizing your land, without additional** soil sealing.

It is now possible to produce renewable energy **without altering the urban and architectural landscape**. Wattway Plus is a solution that visually preserves your estate, while meeting the **growing energy needs** and **keeping your residents' bills under control**.

THE BENEFITS OF THE SOLUTION



A solution for discreet architectural and landscape integration



A solution when your roof space is limited or saturated



Optimisation of land resources



Avoids additional soil sealing

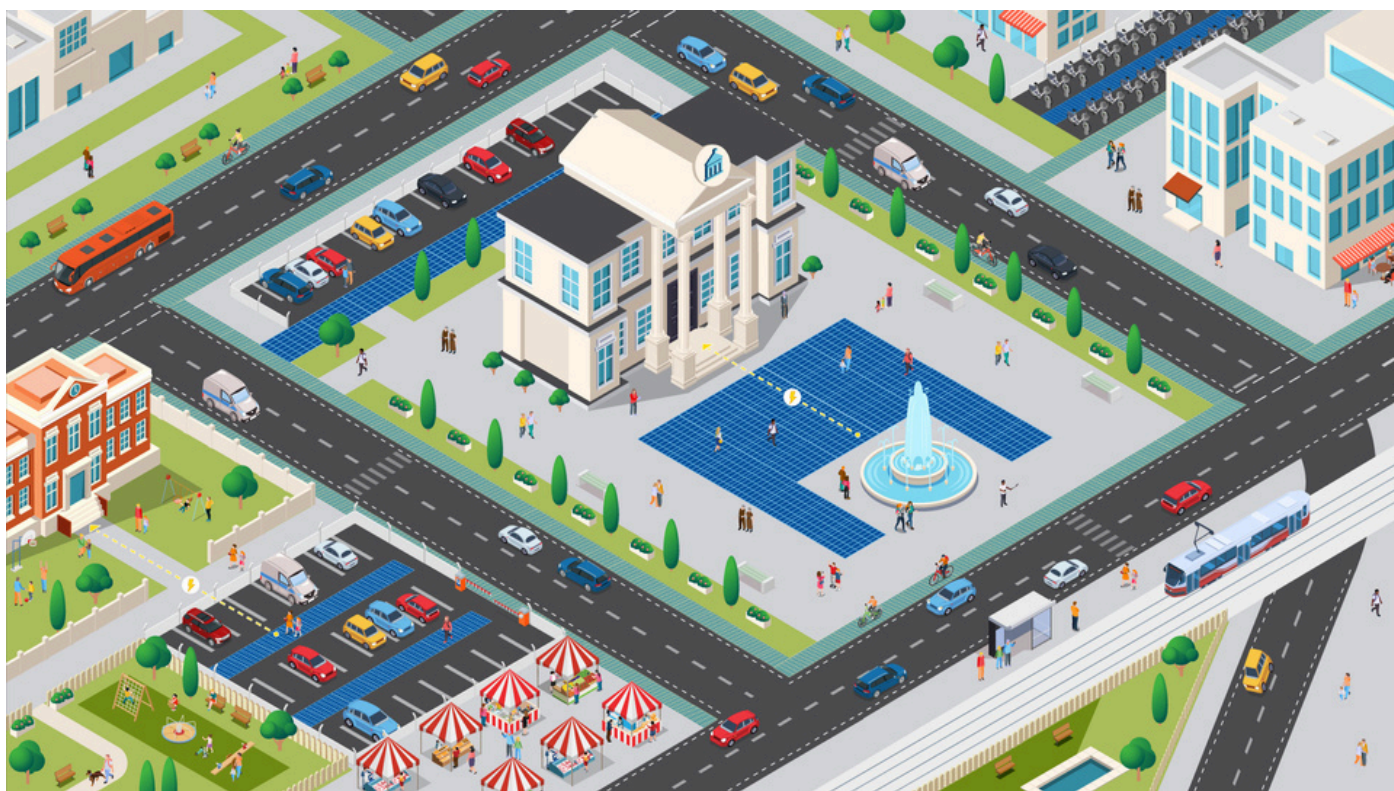


Enables to reduce the carbon impact of your activities



Non-slip system

WATTWAY PLUS INSTALLATION AREAS



 WATTWAY modules
main areas

 Wattway Modules
secondary areas

 Injection of the
energy produced

Parvis, forecourts, pedestrian walkways, car parks, etc. are all areas where Wattway Plus can be installed.

PRODUCTION POTENTIAL OF A PARVIS INSTALLATION

	PARVIS 15,000 to 20,000 m ² (e.g.: Mucem Museum, Marseille - France)	PARVIS 10 to 15,000 m ² (e.g.: Place Ruggero Settimo, Palermo - Italy)	PARVIS < 5,000 m ² (e.g.: University of Murcia, Spain)
AVERAGE SURFACE AREA (m ²)/PARVIS	18,350	9,154	3,705
EQUIVALENT PRODUCTION WATTWAY (MWh/year)	4,320	2,080	893
EQUIVALENT TO ENERGY CONSUMPTION IN NUMBER OF DWELLINGS *	432	208	89

*Assumption: The average electricity consumption for a 4-person household with a 100 m² house is 10,000 kWh per year. (Source: ENGIE)



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PRODUCE YOUR OWN ENERGY WITHOUT TYING UP YOUR LAND!

TRAFFIC-READY AND INTEGRATED SOLAR POWER PLANT

Wattway Plus is a turnkey **photovoltaic solution** that enables renewable energy to be produced at a competitive price by **pooling the land used for car parks**.

Integrated into operational tracks, Wattway Plus is a way of developing your **self consumption potential** on a massive scale by **consuming your own electricity produced**. This electricity is fed into your local buildings (Industries, shops, offices, town halls, etc.) to power your everyday electrical appliances.



Japan, 27 KWp traffic-ready photovoltaic power plant, integrated into a supermarket car park.

By addressing a **new area** such as your car parks, you can extend your photovoltaic production while **optimizing your land, without disrupting the operation of your site and without any aesthetic impact**. Wattway Plus is an integrated solution that meets **your growing energy needs**.

THE BENEFITS OF THE SOLUTION



A solution for discreet architectural and landscape integration



A solution when your roof space is limited or saturated



Optimisation of land resources



Avoids additional soil sealing



Enables to reduce the carbon impact of your activities



Non-slip system

WATTWAY PLUS INSTALLATION AREAS



 WATTWAY modules
parking areas

 Wattway Modules
potential areas

 Injection of the
energy produced

Car parks, pedestrian walkways, forecourts, etc. are all areas where Wattway Plus can be installed.

PRODUCTION POTENTIAL OF A CAR PARK INSTALLATION

	SHOPPING CENTRE Aix-en-Provence, France	PRIVATE COMPANY (Factory, office, etc.) Lisbon, Portugal	PUBLIC BUILDING (Town hall, library, etc.) Montreux, Switzerland
NUMBER OF PARKING SPACES	1,000	500	50
AVERAGE SURFACE AREA (m ²)/PARKING	25,875	12,600	1,250
EQUIVALENT PRODUCTION WATTWAY (MWh/year)	5,702	2,776	237
EQUIVALENT TO ENERGY CONSUMPTION IN NUMBER OF DWELLINGS *	570	278	24

*Assumption: The average electricity consumption for a 4-person household with a 100 m² house is 10,000 kWh per year. (Source: ENGIE)



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