

FEASIBILITY STUDY LOS ANGELES

HIDDEN PV IN WHITE COLOR



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) Visible light transmittance

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy LBS. of CO₂ avoided Miles driven in an electric car Light points fed

3,365 KWh per sqm 1,413 LBS. per sgm 12,026 Mi per sqm 6,6 per sqft/day

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am

110 Wp per sqm

0%

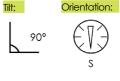
ECONOMIC BENEFITS LOS ANGELES*

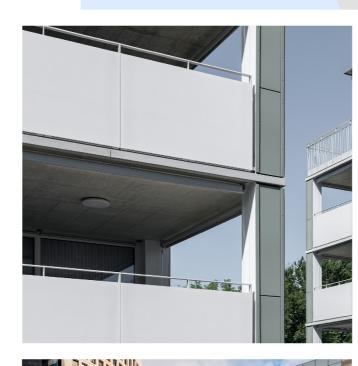
Value of the renewable energy	\$831 per sqm			
Return on investment	7,75 times			
Internal rate of return (IRR)	96,98%			
Payback time	1 year			
Building's value increase**	\$411 per sqm			

RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

Renewable energy (Las Vegas)	3,334 KWh per s
Payback time (Las Vegas)	l year
Renewable energy (Portland)	2,254 KWh per s
Payback time (Portland)	l year
Renewable energy (Denver)	2,490 KWh per s
Payback time (Denver)	l year

DATA CONSIDERED FOR CALCULATIONS







ENERGY LOSSES PER ORIENTATION



Portland San Francisco San Jose

120°W

Las Vegas

Boise

Los Angeles

San Diego

Hawai

Honolulu

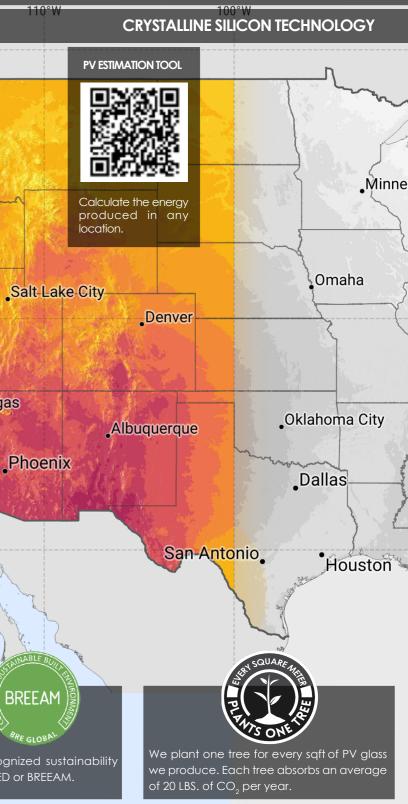
Onyx facilitates obtaining recognized sustainability certifications for buildings like LEED or BREEAM.

Data Calculated for a 35-year useful life.

* The prices considered are merely indicative and may vary depending on the installed glass surface. The data provided in this feasibility study in no case involves a contractual obligation.

** According to the US Department of Energy & Environment a sustainable building will obtain an increase of value between 10 and 20 USD for every USD generated by renewable energy.

PV FAÇADE / BALCONY WESTERN UNITED STATES



FEASIBILITY STUDY LOS ANGELES

HIDDEN PV IN WHITE COLOR



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) 110 Wp per sqm Visible light transmittance

0%

10.63 per sqft/day

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy 5,411 KWh per sqm LBS. of CO₂ avoided 2,272 LBS. per sqm 19,338 Mi per sqm Miles driven in an electric car Light points fed

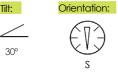
ECONOMIC BENEFITS LOS ANGELES*

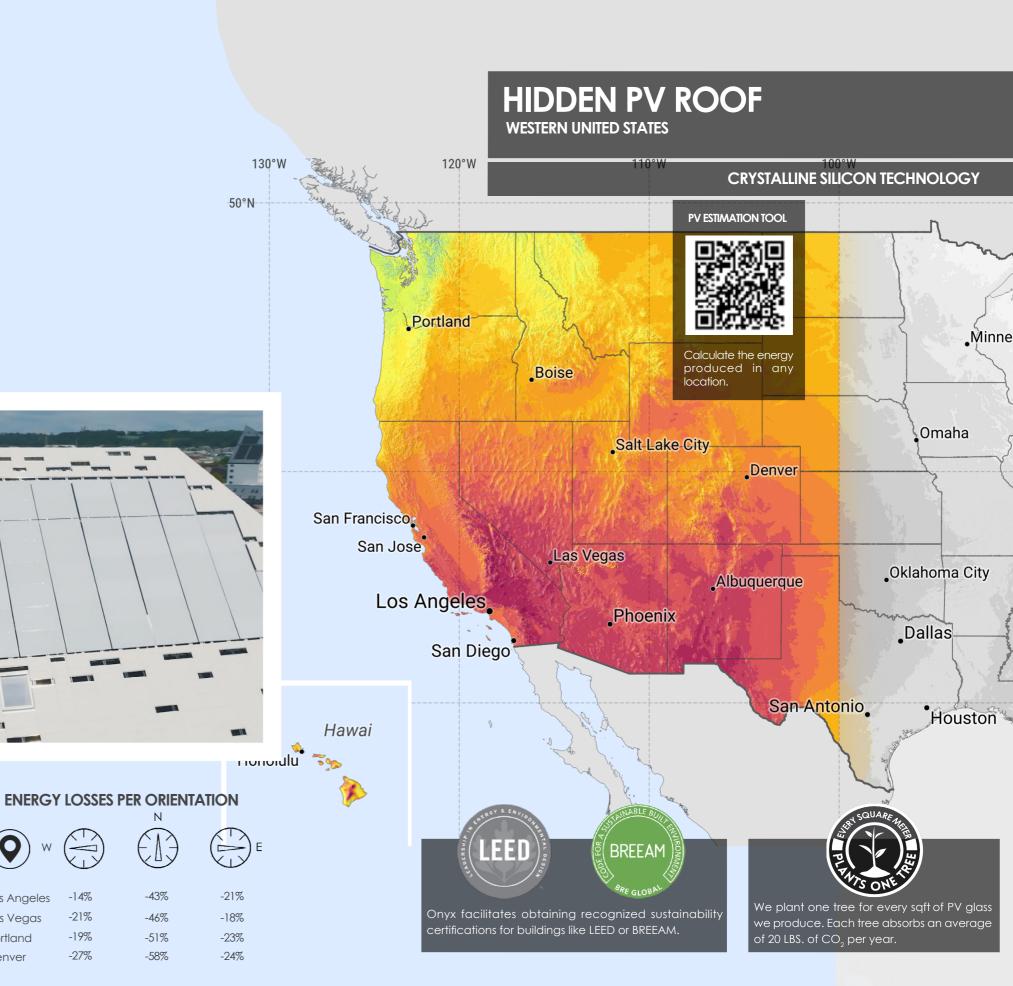
Value of the renewable energy	\$1,337 per sqm
Return on investment	11.45 times
Internal rate of return (IRR)	100%
Payback time	l year
Building's value increase**	\$660 per sqm

RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

Renewable energy (Las Vegas)	5.843 KWh per sqr
Payback time (Las Vegas)	l year
Renewable energy (Portland)	4,112 KWh per sqr
Payback time (Portland)	l year
Renewable energy (Denver)	3,625 KWh per sqr
Payback time (Denver)	l year

DATA CONSIDERED FOR CALCULATIONS





Data Calculated for a 35-year useful life.

O

Los Angeles

Las Vegas

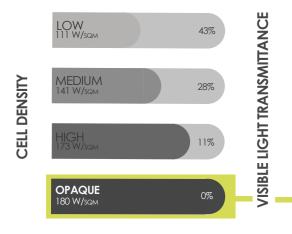
Portland

Denver

W

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CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) 180 Wp per sqm Visible light transmittance

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy LBS. of CO₂ avoided Miles driven in an electric car Light points fed

5,506 KWh per sqm 2,312 LBS. per sqm 19,679 Mi per sqm 11 per sqft/day

0%

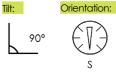
ECONOMIC BENEFITS LOS ANGELES*

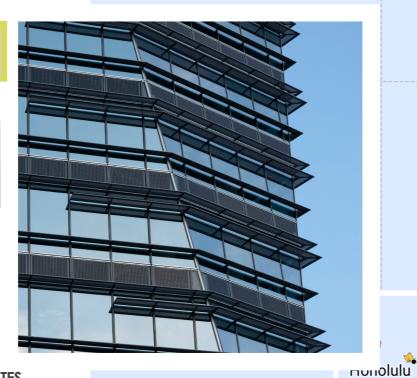
Value of the renewable energy	\$1,360 per sqm			
Return on investment	9,14 times			
Internal rate of return (IRR)	54,59%			
Payback time	l year			
Building's value increase**	\$672 per sqm			

RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

Renewable energy (Las Vegas)	5.946 KWh per sc
Payback time (Las Vegas)	l year
Renewable energy (Portland)	3,689 KWh per sc
Payback time (Portland)	l year
Renewable energy (Denver)	4,625 KWh per sc
Payback time (Denver)	l year

DATA CONSIDERED FOR CALCULATIONS





ENERGY LOSSES PER ORIENTATION



120°W Portland Boise

San Francisco San Jose

130°

-50°N

Los Angeles

San Diego

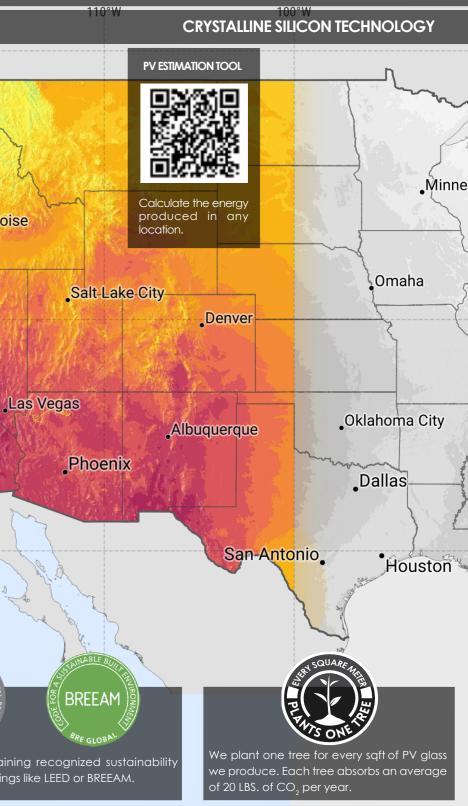
Hawai

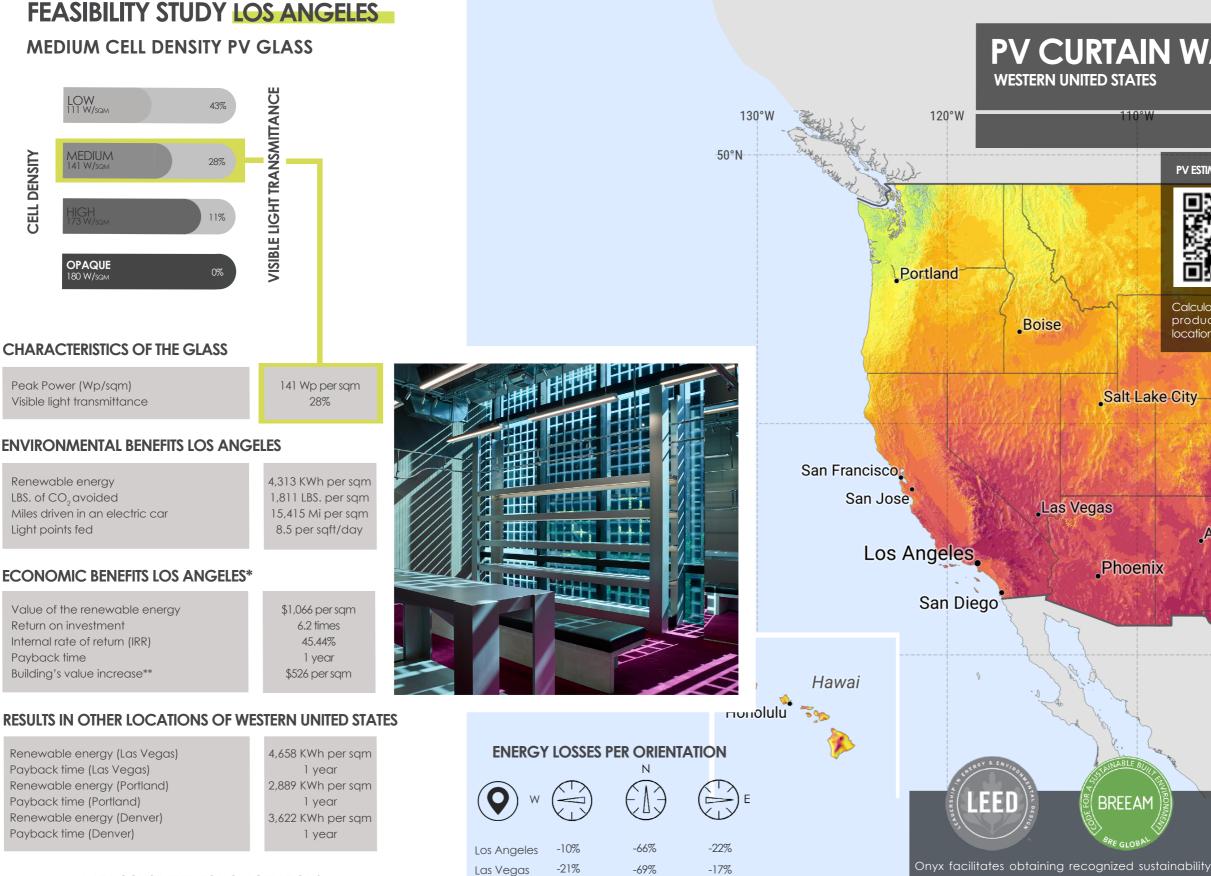
Onyx facilitates obtaining recognized sustainability certifications for buildings like LEED or BREEAM.

Data Calculated for a 35-year useful life.

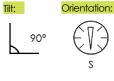
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PV DOUBLE SKIN / SPANDREL WESTERN UNITED STATES





DATA CONSIDERED FOR CALCULATIONS



Data Calculated for a 35-year useful life.

-17%

-28%

Portland

Denver

-61%

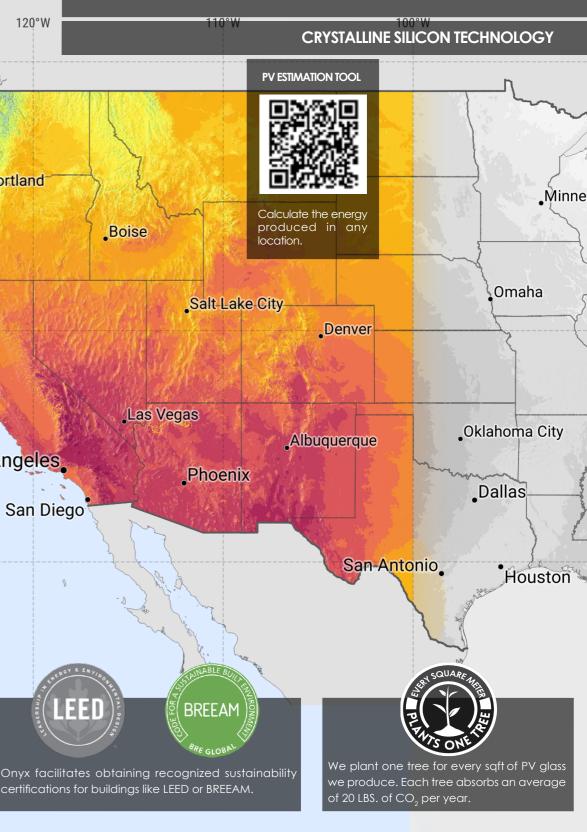
-70%

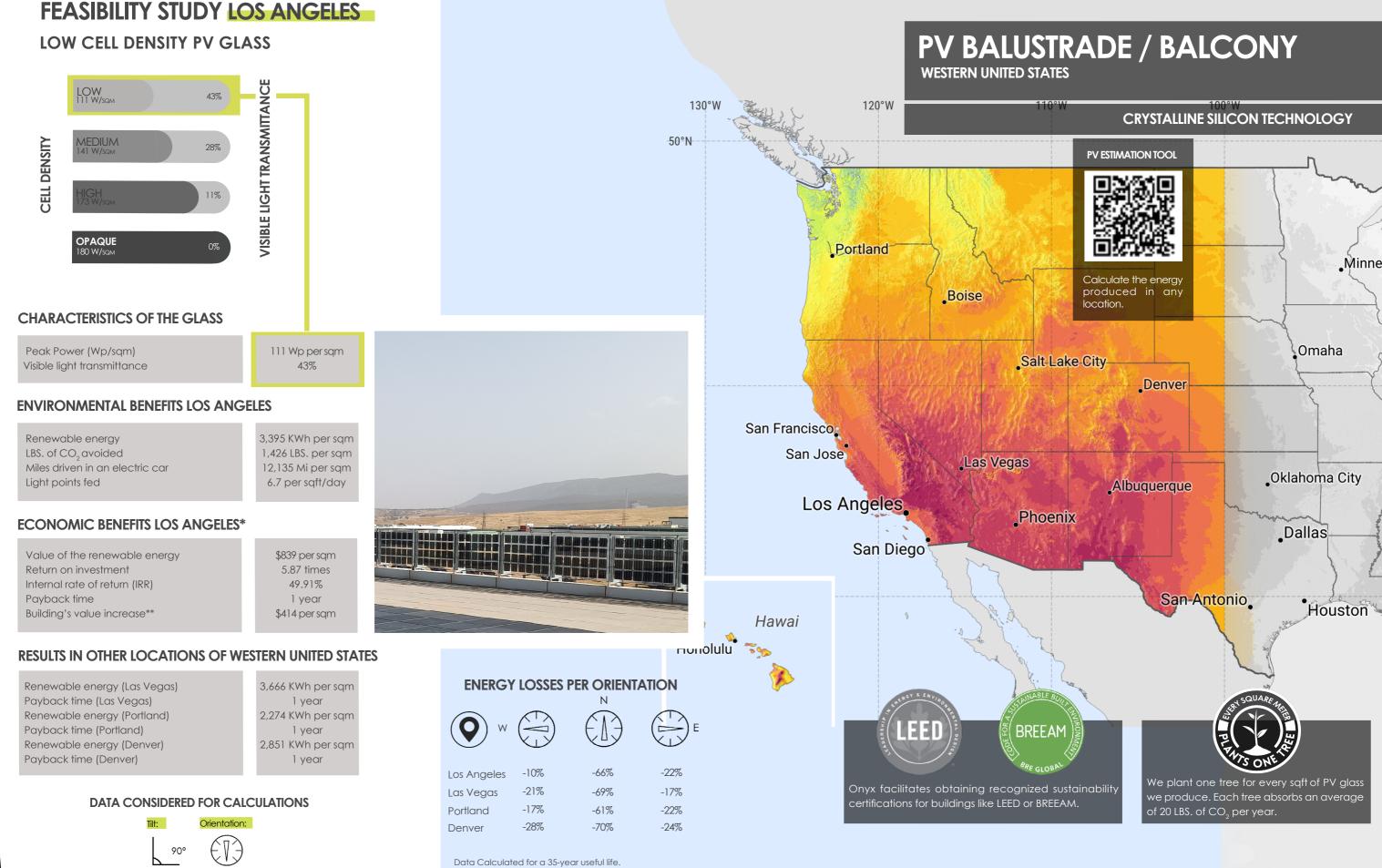
-22%

-24%

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PV CURTAIN WALL





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140 Wp per sqm

0%



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) Visible light transmittance

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy 6,025 KWh per sqm LBS. of CO₂ avoided 2,530 LBS. per sqm 21,532 Mi per sqm Miles driven in an electric car Light points fed 11.84 per sqft/day

ECONOMIC BENEFITS LOS ANGELES*

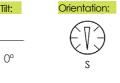
Value of the renewable energy \$1,488 per sqm 6.15 times Return on investment 41.62% Internal rate of return (IRR) Payback time 1 year Building's value increase** \$735 per sqm

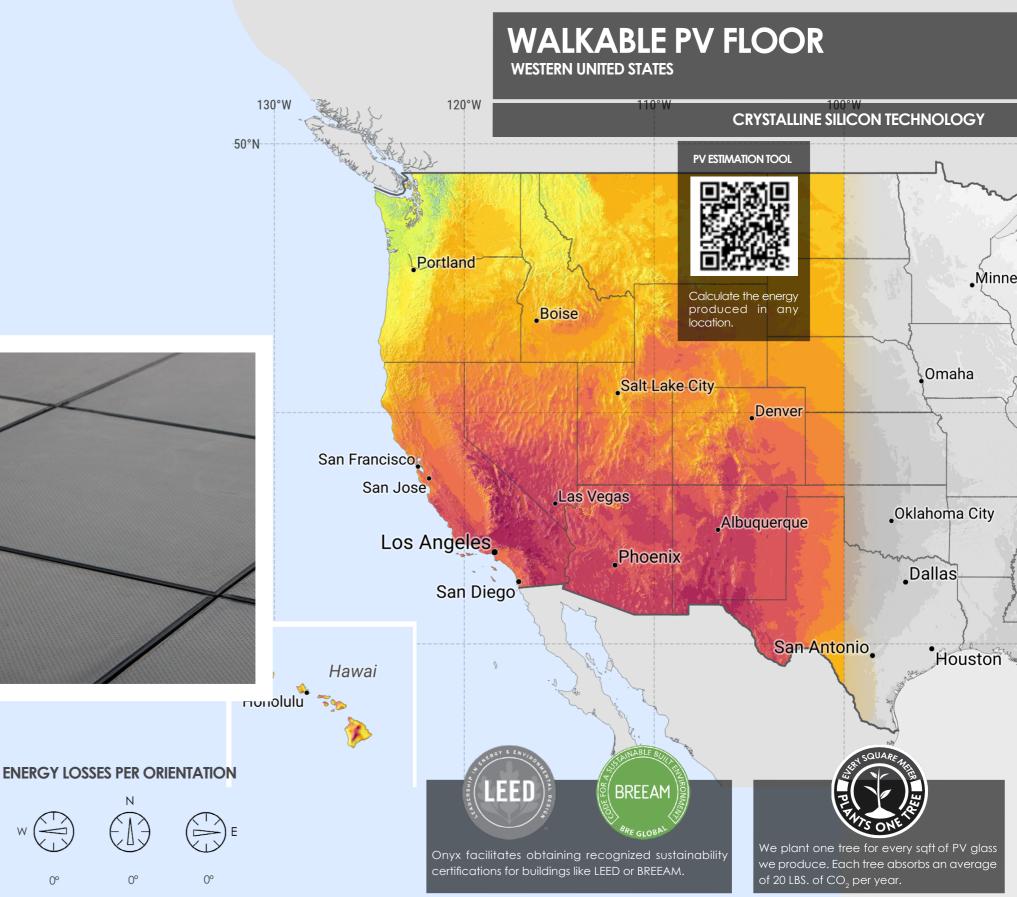
RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

Renewable energy (Las Vegas)	6,507 KWh per sqm
Payback time (Las Vegas)	l year
Renewable energy (Portland)	4,036 KWh per sqm
Payback time (Portland)	l year
Renewable energy (Denver)	5,061 KWh per sqm
Payback time (Denver)	l year

0°

DATA CONSIDERED FOR CALCULATIONS





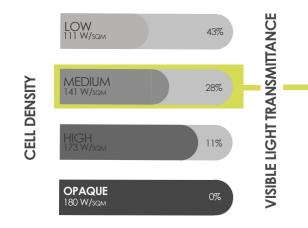
Data Calculated for a 35-year useful life.

0°

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MEDIUM CELL DENSITY PV GLASS



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqft) Visible light transmittance	141 Wp per sqm 28%	
		A loss

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy 6,936 KWh per sqm LBS. of CO₂ avoided 2,913 LBS. per sqm 24,788 Mi per sqm Miles driven in an electric car Light points fed 13.63 per sqft/day

ECONOMIC BENEFITS LOS ANGELES*

Value of the renewable energy	\$1,713 per sqm
Return on investment	13 times
Internal rate of return (IRR)	85,37%
Payback time	l year
Building's value increase**	\$846 per sqm

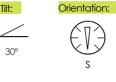
RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

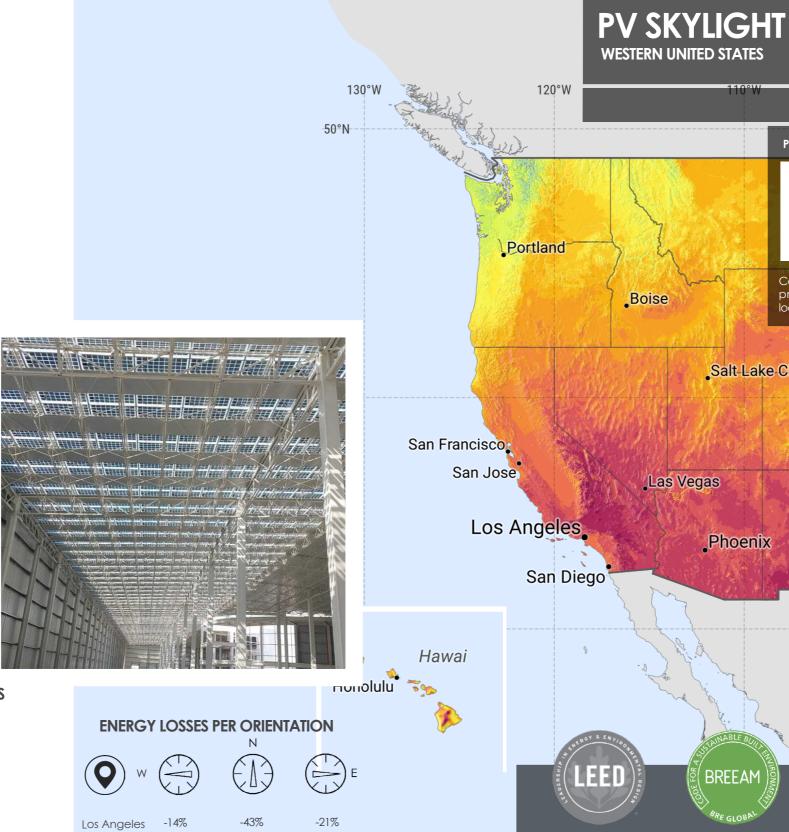
am

am

Renewable energy (Las Vegas)	7,490 KWh per s
Payback time (Las Vegas)	1 year
Renewable energy (Portland)	4,647 KWh per s
Payback time (Portland)	1 year
Renewable energy (Denver)	5,826 KWh per s
Payback time (Denver)	lyear

DATA CONSIDERED FOR CALCULATIONS





Onyx facilitates obtaining recognized sustainability certifications for buildings like LEED or BREEAM.

Data Calculated for a 35-year useful life.

-21%

-19%

-27%

-46%

-51%

-58%

-18%

-23%

-24%

O

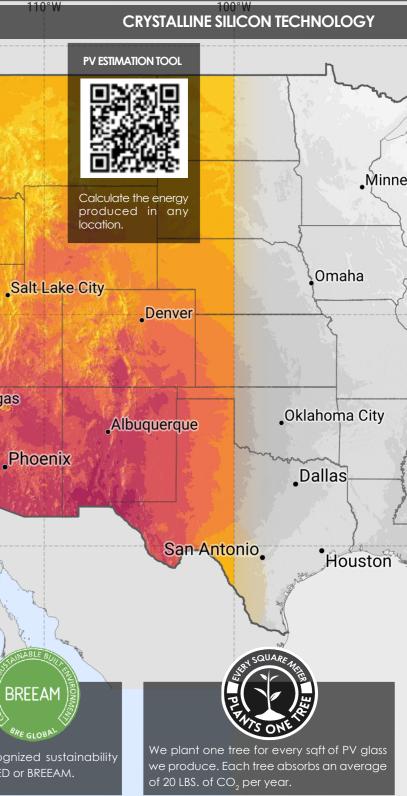
Las Vegas

Portland

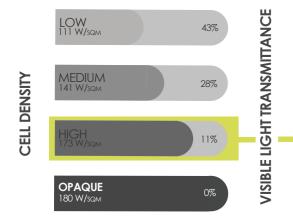
Denver

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FEASIBILITY STUDY LOS ANGELES **HIGH CELL DENSITY**



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) Visible light transmittance

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy LBS. of CO₂ avoided Miles driven in an electric car Light points fed

7,392 KWh per sqm 3,104 LBS. per sam 26,419 Mi per sqm 14.5 per sqft/day

173 Wp per sqm

11%

ECONOMIC BENEFITS LOS ANGELES*

Value of the renewable energy	\$1,826 per sqm		
Return on investment	12.29 times		
Internal rate of return (IRR)	67.82%		
Payback time	l year		
Building's value increase**	\$902 per sqm		

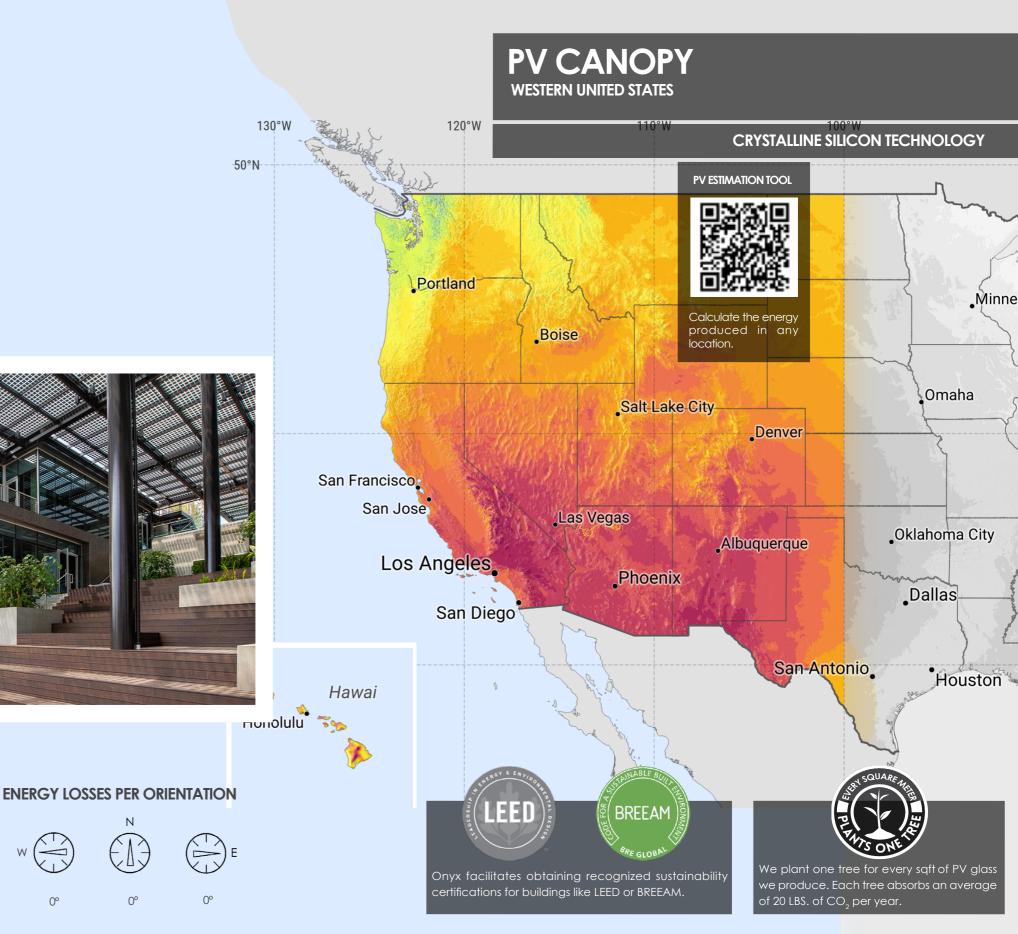
RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES



7,983 KWh per sqm 1 year 4,952 KWh per sqm 0.8 years 6,209 KWh per sqm l year

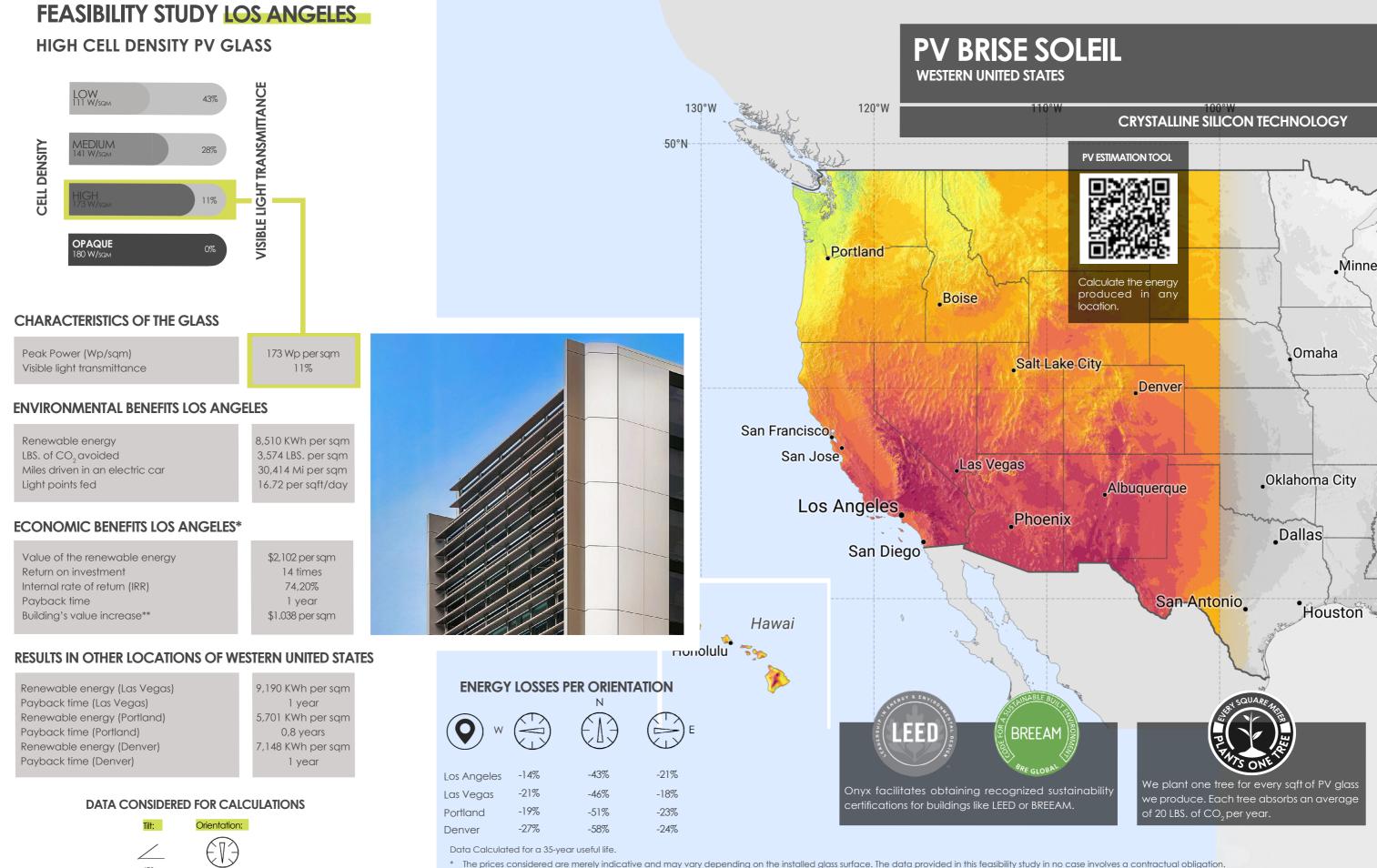
DATA CONSIDERED FOR CALCULATIONS





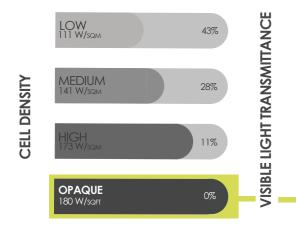
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FEASIBILITY STUDY LOS ANGELES **OPAQUE PV GLASS**



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/sqm) Visible light transmittance 180 Wp per sqm 0%

ENVIRONMENTAL BENEFITS LOS ANGELES

Renewable energy LBS. of CO₂ avoided Miles driven in an electric car Light points fed

5,506 KWh per sqm 2,312 LBS. per sqm 19,679 Mi per sqm 11 per sqft/day

ECONOMIC BENEFITS LOS ANGELES*

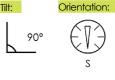
Value of the renewable energy \$1,360 per sqm 8.42 times Return on investment 53.46% Internal rate of return (IRR) Payback time l year Building's value increase** \$672 per sqm

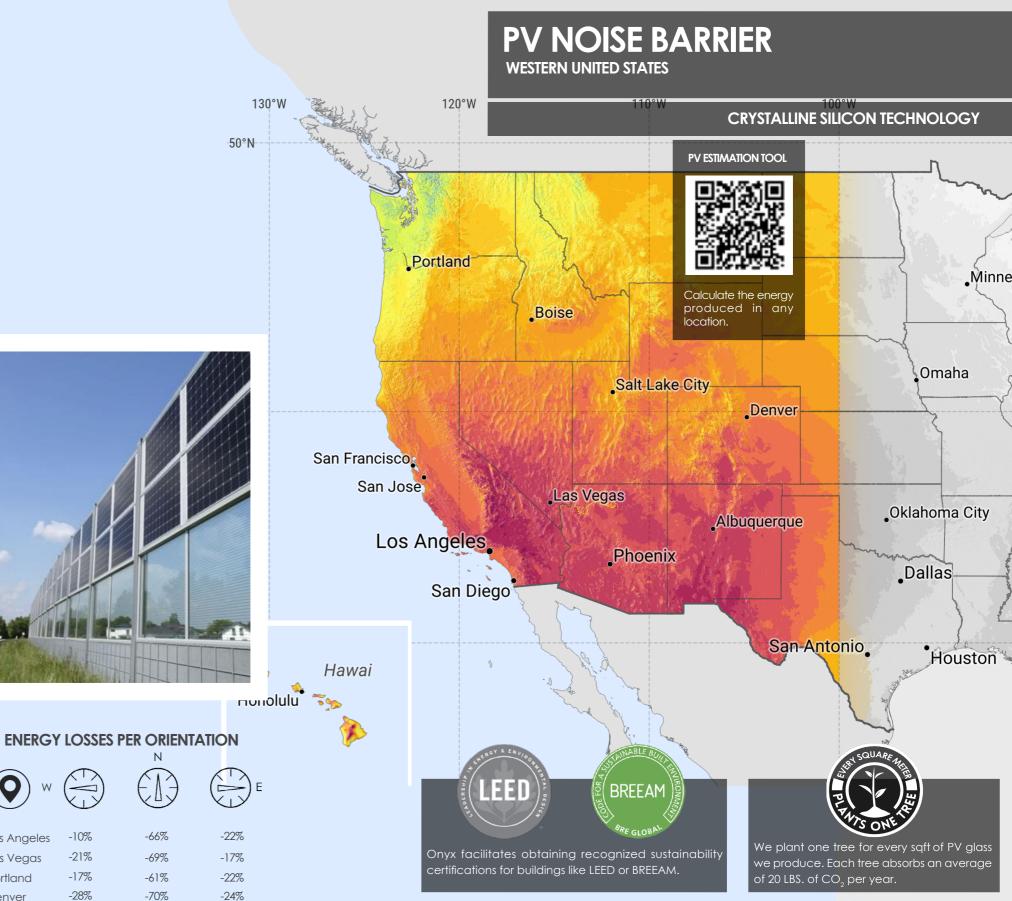
RESULTS IN OTHER LOCATIONS OF WESTERN UNITED STATES

Renewable energy (Las Vegas)	5,946 KW
Payback time (Las Vegas)	1
Renewable energy (Portland)	3,689 KV
Payback time (Portland)	1 .
Renewable energy (Denver)	4,625 KV
Payback time (Denver)	1 .

Wh per sqm year Vh per sam vear Wh per sqm year

DATA CONSIDERED FOR CALCULATIONS





Data Calculated for a 35-year useful life.

-10%

-21%

-17%

-28%

W

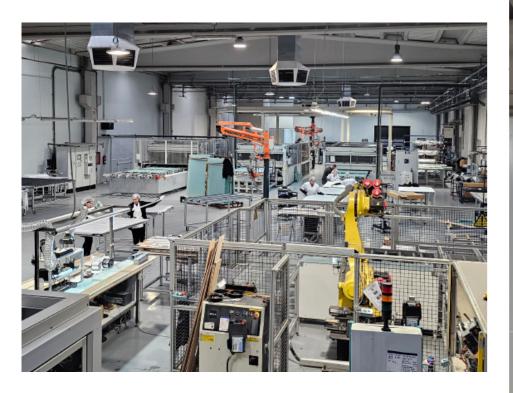
Los Angeles

Las Vegas

Portland

Denver

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Global A VERIFIED ENVIRONMENTAL DECLARATION

ECO PLATFORM
EDD
СРВ
VERIFIED

Environmental Product Declaration

EN ISO 14025:2010 EN 15804:2012+A2:2019



CRYSTALLINE PHOTOVOLTAIC SOLAR GLASS

G/GM07244 G/GM07211 G/GM03644 G/GM01688A

Expiry date:

The declared validity is to registration and publication

GlobalEPD Code: GlobalEPD EN15804-063

ECO PLATFORM & AENOR

ECO Platform is a European Association made up of DAP Verification Program Administrators, industrial associations, and life cycle analysis experts, which guarantees the quality and conformity of environmental declarations of construction products in accordance with ISO 14025 and EN 15084 Standards. ECO Platform represents a common pan-European framework for DAPs. The Programs commit to common quality and verification criteria, which are regularly audited.

AENOR is a founding member of ECO Platform and passed audits in 2014 to issue Environmental Declarations with the ECO Platform EPD EN 15804 VERIFIED™ logo, being one of the first four European Administrators along with International EPD System (Sweden), IBU (Germany) and BAU EPD (Austria).



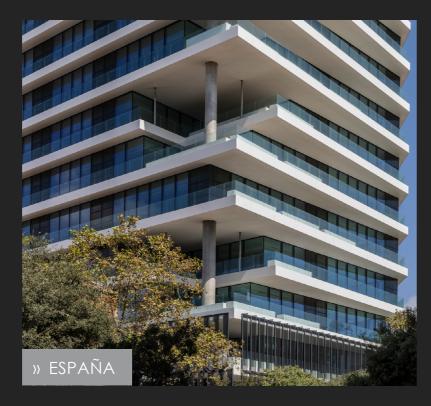
GLOBAL EPD SCAN THE QR TO DOWNLOAD OUR EPD





The Environmental Product Declaration (EPD) is a certified document that provides our clients with reliable, verified, and transparent information regarding the environmental impact throughout the life cycle of a product. This information is based on a Life Cycle Analysis (LCA) study conducted in accordance with the Product Category Rules (PCR) developed by the Eco-labeling Program. In our specific case, the study has been carried out under the **Product Category** Rule for Construction Products UNE EN 15804:2012+A2.

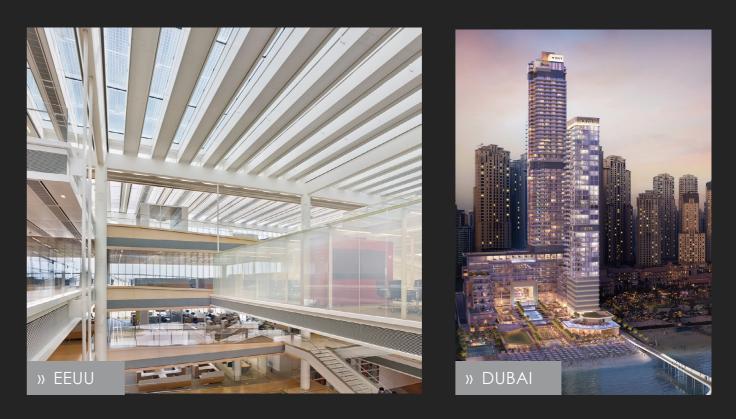
















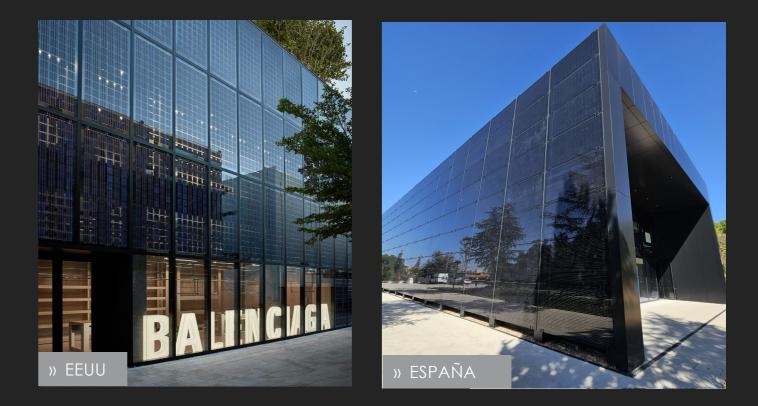




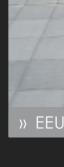




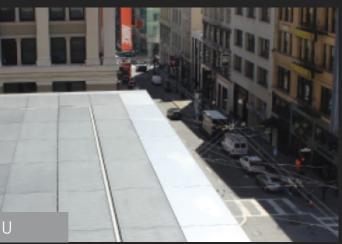


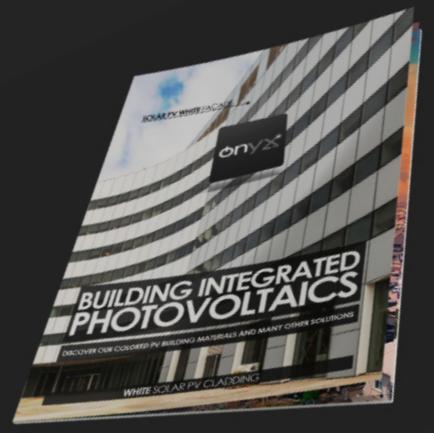














Scan this QR code to acces our catalog.

UNLOCKING THE POWER OF PHOTOVOLTAIC GLASS:

Are you curious about the potential of photovoltaic (PV) glass for your project? Our team at Onyx Solar is here to guide you through the process and help you harness the benefits of this innovative technology.

WHAT DOES PV GLASS BRING TO YOUR PROJECT?

✓ Aesthetic Integration: Say goodbye to bulky solar panels! PV glass blends seamlessly with architectural designs, enhancing the visual appeal of your building.

✓ Environmental Impact: By using PV glass, you contribute to reducing carbon emissions. Imagine the positive impact on our planet!

HOW ONYX SOLAR CAN ASSIST YOU

Our technical team offers free feasibility studies tailored to your project. Here's what we provide:

· Product Datasheets: Detailed information about our PV glass products, including technical specifications.

•Shop Drawings: Visual representations to aid in your design process.

• Energy Estimates: Understand the potential energy output based on your installation.

·CO, Emissions Prevented: Quantify the environmental benefits of using PV glass.

·Cost Analysis: Get a clear picture of the investment required.

• Payback and ROI: Evaluate the financial returns over time.

•Tax Credits and Incentives: Explore available incentives to make an informed decision.

FACTORY C/ Palma de Mallorca, 8 Avila · Spain · 05194 Phone: +34 920 21 00 50

info@onyxsolar.com

The value of the renewable energy generated is just a preliminary estimate and does not imply any kind of guarantee. Factors such as surrounding shadows, self-shades, or other external aspects have not been taken into account. These factors might lead to a reduction in energy production. In addition, other potential losses due to BOS are also excluded from these calculations. The calculation has been done using PVWATTS and PVSYST in pre-design mode. Onyx Solar Energy S.L. makes no representations about the accuracy of these estimates and does not warrant, or guarantee, whether express or implied, that the content in the report is accurate, complete, or up to date.

 \checkmark Energy Generation: PV glass generates clean electricity from sunlight, reducing your reliance on traditional power sources.



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www.onyxsolar.com