

# FEASIBILITY STUDIES

DISCOVER DIFFERENT CONSTRUCTIVE SOLUTIONS IN SLOVAKIA

# FEASIBILITY STUDY BRATISLAVA

## HIDDEN PV IN WHITE COLOR

- INTENSE GREEN  
100 W/M<sup>2</sup>
- WHITE  
110 W/M<sup>2</sup>
- MARBLE BROWN  
115 W/M<sup>2</sup>
- DEEP BLUE  
160 W/M<sup>2</sup>

### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m <sup>2</sup> )	110 Wp per m <sup>2</sup>
Visible light transmittance	0%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	1.523 KWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	202 Kg per m <sup>2</sup>
Kilometres driven in an electric car	8.780 Km per m <sup>2</sup>
Light points fed	3 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	362 € per m <sup>2</sup>
Return on investment	3,4 times
Internal rate of return (IRR)	9 %
Payback time	7 years
Building's value increase**	180 € per m <sup>2</sup>



# PV FAÇADE / BALCONY

SLOVAKIA

## CRYSTALLINE SILICON TECHNOLOGY

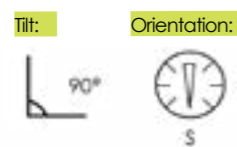
### PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

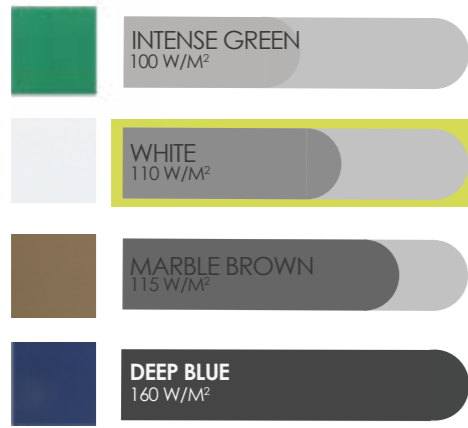
\* The prices considered are merely indicative and may vary depending on the installed glass surface. The data provided in this feasibility study in no case involves a contractual obligation.

\*\* 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.



# FEASIBILITY STUDY BRATISLAVA

## HIDDEN PV IN WHITE COLOR



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m²)	110 Wp per m²
Visible light transmittance	0%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	1.776 KWh per m²
Kg of CO <sub>2</sub> avoided	240 Kg per m²
Kilometres driven in an electric car	10.224 Km per m²
Light points fed	3,6 per m²/day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	412 € per m²
Return on investment	4,12 times
Internal rate of return (IRR)	10,5 %
Payback time	6 years
Building's value increase**	210 € per m²



# HIDDEN PV ROOF

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

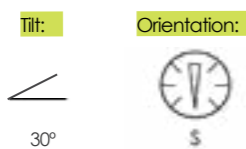
PV ESTIMATION TOOL



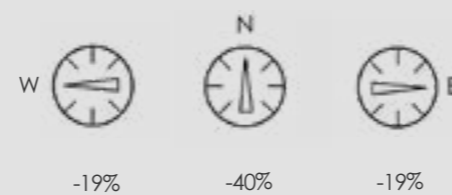
Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

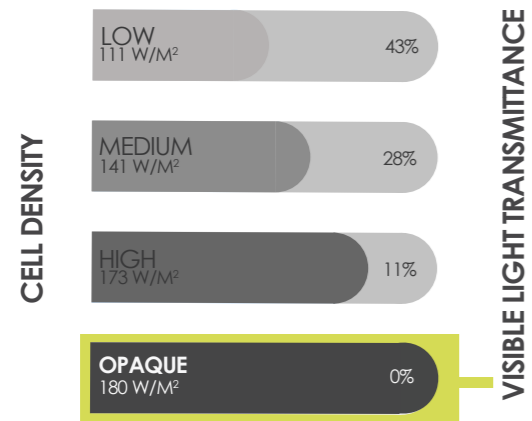
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\*\* According to the US Department of Energy & Environment a sustainable building will obtain an increase of value between 10 and 20 USD for every USD generated by renewable energy.



# FEASIBILITY STUDY BRATISLAVA

## OPAQUE PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m <sup>2</sup> )	180 Wp per m <sup>2</sup>
Visible light transmittance	0%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	3.835 KWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	506 Kg per m <sup>2</sup>
Kilometres driven in an electric car	22.053 Km per m <sup>2</sup>
Light points fed	7,5 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	892 € per m <sup>2</sup>
Return on investment	8,57 times
Internal rate of return (IRR)	22,1 %
Payback time	5 years
Building's value increase**	440 € per m <sup>2</sup>



# PV DOUBLE SKIN / SPANDREL

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

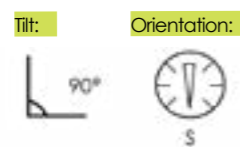
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

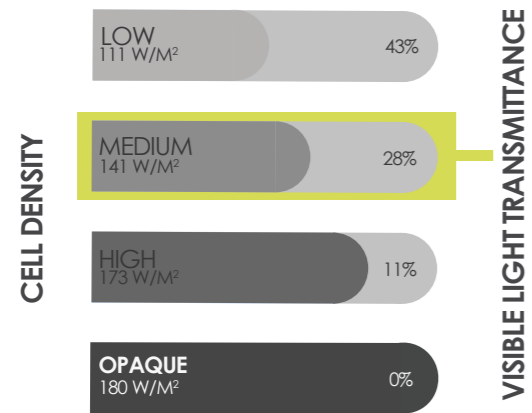
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# FEASIBILITY STUDY BRATISLAVA

## MEDIUM CELL DENSITY PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m²)	141 Wp per m²
Visible light transmittance	28%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	3.004 KWh per m²
Kg of CO <sub>2</sub> avoided	396 Kg per m²
Kilometres driven in an electric car	17.275 Km per m²
Light points fed	5,9 per m²/day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	699 € per m²
Return on investment	4,4 times
Internal rate of return (IRR)	11,45 %
Payback time	9 years
Building's value increase**	345 € per m²



# PV CURTAIN WALL

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

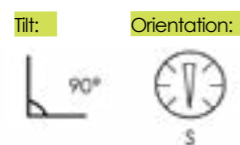
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

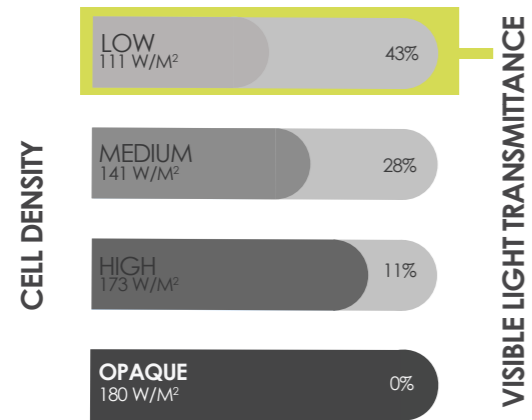
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# FEASIBILITY STUDY BRATISLAVA

## LOW CELL DENSITY PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m²)	111 Wp per m²
Visible light transmittance	43%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	2.365 KWh per m²
Kg of CO <sub>2</sub> avoided	312 Kg per m²
Kilometres driven in an electric car	13.599 Km per m²
Light points fed	4,65 per m²/day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	550 € per m²
Return on investment	4 times
Internal rate of return (IRR)	10,23 %
Payback time	10 years
Building's value increase**	272 € per m²



# PV BALUSTRADE / BALCONY

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

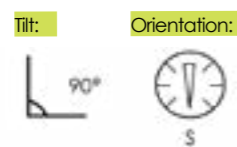
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

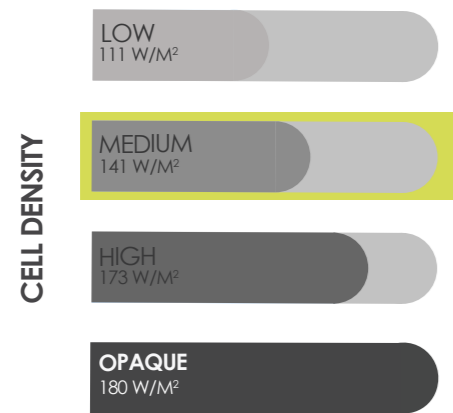
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# FEASIBILITY STUDY BRATISLAVA

## OPAQUE PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

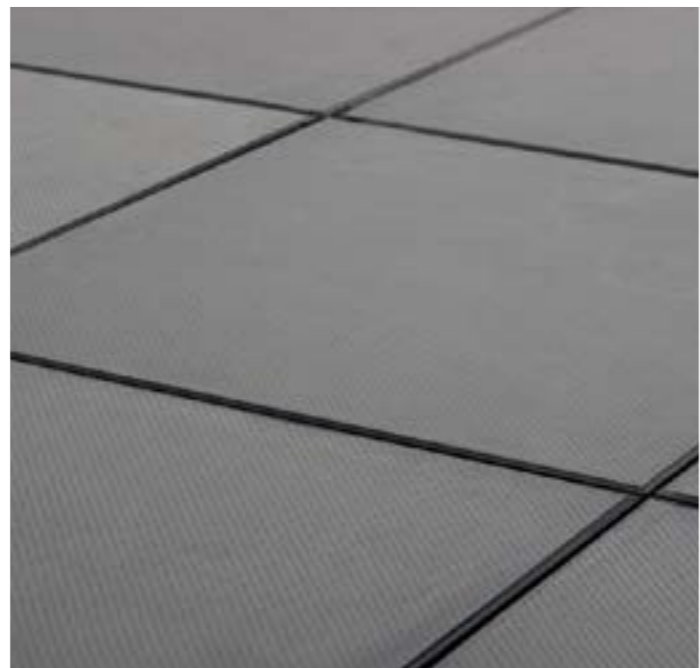
Peak Power (Wp/m²)	140 Wp per m²
Visible light transmittance	0%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	5.498 KWh per m²
Kg of CO <sub>2</sub> avoided	653 Kg per m²
Kilometres driven in an electric car	28.452 Km per m²
Light points fed	9.72 per m²/day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	1.151 € per m²
Return on investment	4,57 times
Internal rate of return (IRR)	11,87 %
Payback time	9 years
Building's value increase**	568 € per m²



# WALKABLE PV FLOOR

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

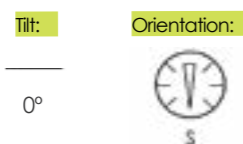
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

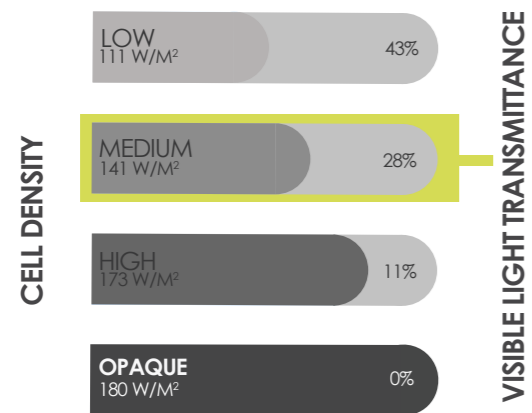
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# FEASIBILITY STUDY BRATISLAVA

## MEDIUM CELL DENSITY PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m <sup>2</sup> )	141 Wp per m <sup>2</sup>
Visible light transmittance	28%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	4.444 KWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	586 Kg per m <sup>2</sup>
Kilometres driven in an electric car	25.538 Km per m <sup>2</sup>
Light points fed	9 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	1.030 € per m <sup>2</sup>
Return on investment	10,3 times
Internal rate of return (IRR)	26,3 %
Payback time	4 years
Building's value increase**	510 € per m <sup>2</sup>



# PV SKYLIGHT

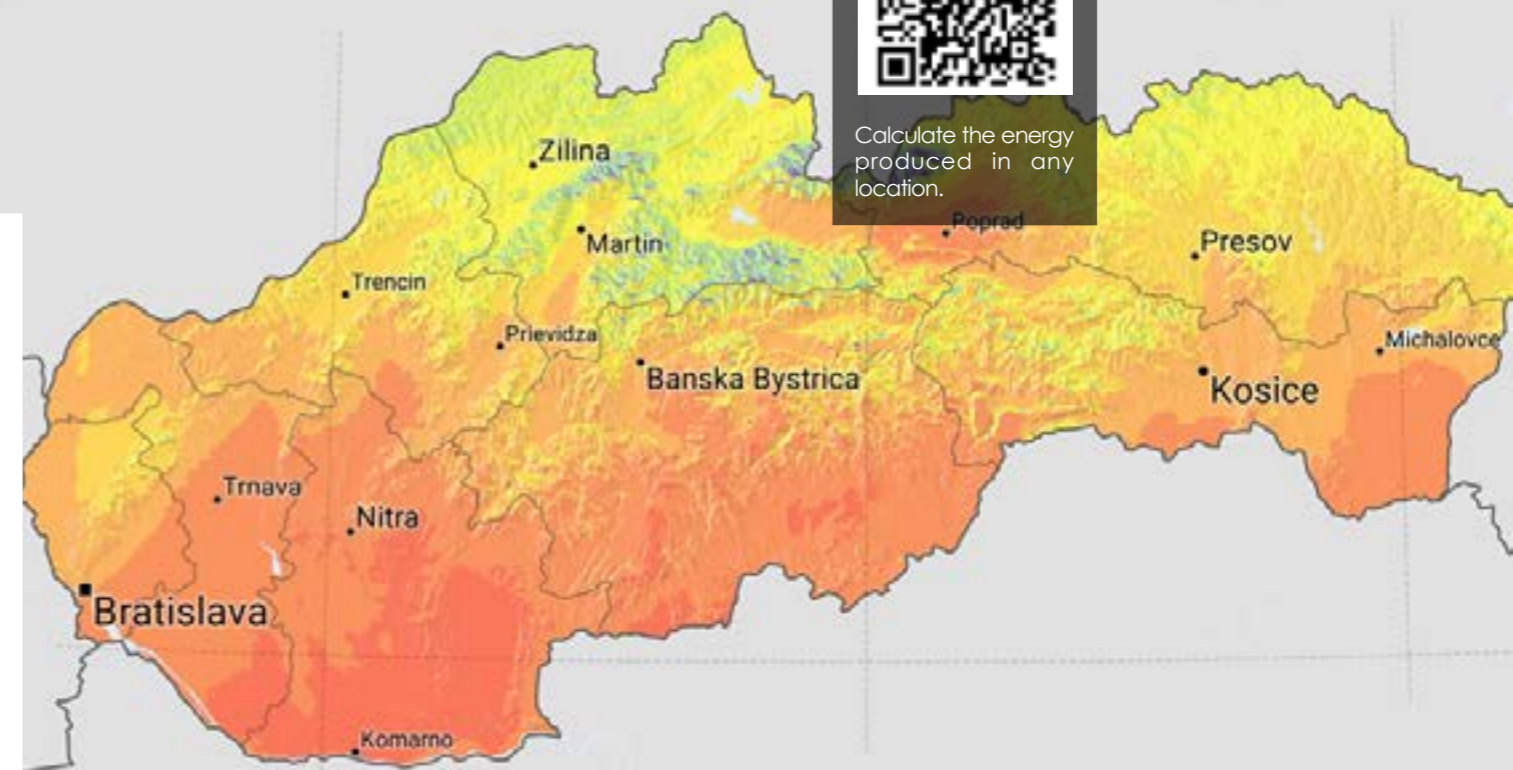
SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

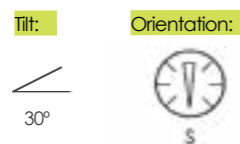
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

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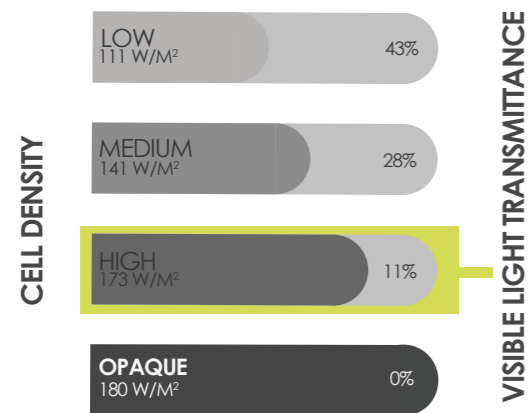
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# FEASIBILITY STUDY BRATISLAVA

## HIGH CELL DENSITY



### CHARACTERISTICS OF THE INSTALLATION

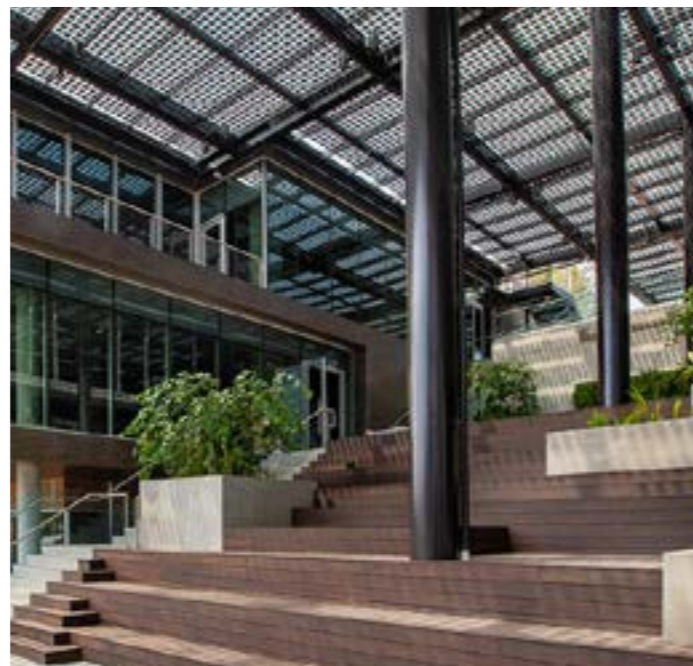
Peak Power (Wp/m <sup>2</sup> )	173 Wp per m <sup>2</sup>
Visible light transmittance	11%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	4.755 kWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	627 Kg per m <sup>2</sup>
Kilometres driven in an electric car	27.345 Km per m <sup>2</sup>
Light points fed	9,34 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	1.106 € per m <sup>2</sup>
Return on investment	10,89 x
Internal rate of return (IRR)	27,8 %
Payback time	4 years
Building's value increase**	546 € per m <sup>2</sup>



# PV CANOPY

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

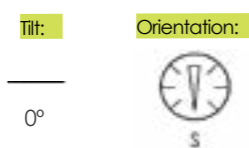
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

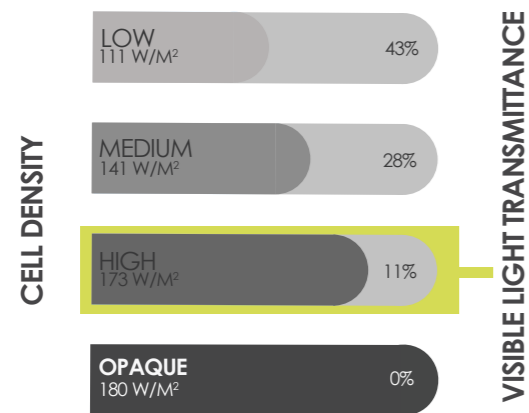
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# FEASIBILITY STUDY BRATISLAVA

## HIGH CELL DENSITY PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

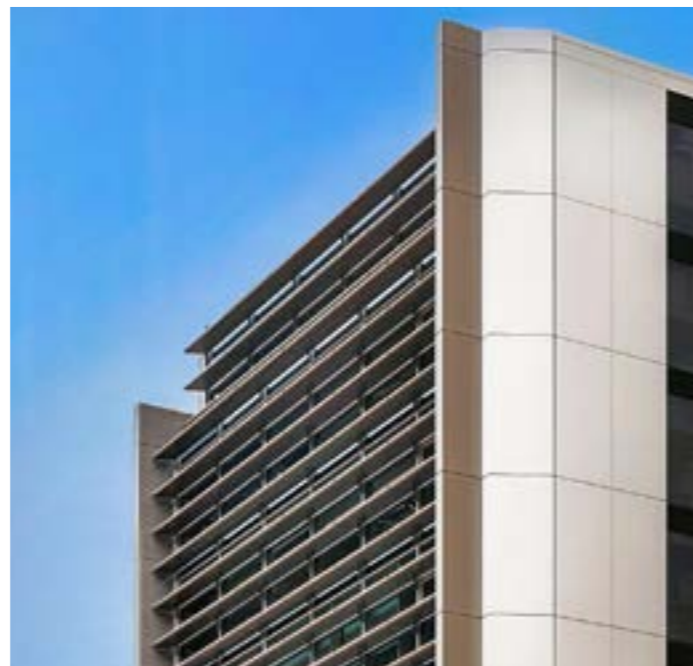
Peak Power (Wp/m <sup>2</sup> )	173 Wp per m <sup>2</sup>
Visible light transmittance	11%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	5.449 KWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	719 Kg per m <sup>2</sup>
Kilometres driven in an electric car	31.333 Km per m <sup>2</sup>
Light points fed	10,71 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	1.267 € per m <sup>2</sup>
Return on investment	12,5 x
Internal rate of return (IRR)	31,75 %
Payback time	4 years
Building's value increase**	626 € per m <sup>2</sup>



# PV BRISE SOLEIL

SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

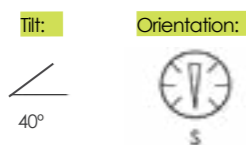
PV ESTIMATION TOOL



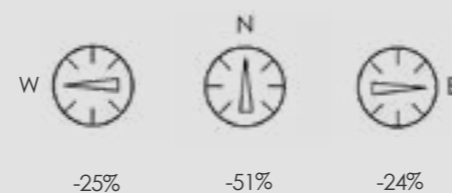
Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

Data Calculated for a 35-year useful life.

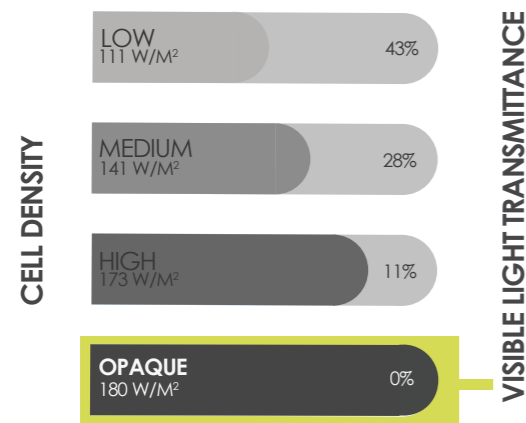
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# FEASIBILITY STUDY BRATISLAVA

## OPAQUE PV GLASS



### CHARACTERISTICS OF THE INSTALLATION

Peak Power (Wp/m <sup>2</sup> )	180 Wp per m <sup>2</sup>
Visible light transmittance	0%

### ENVIRONMENTAL BENEFITS BRATISLAVA

Renewable energy generated	3.835 KWh per m <sup>2</sup>
Kg of CO <sub>2</sub> avoided	506 Kg per m <sup>2</sup>
Kilometres driven in an electric car	22.053 Km per m <sup>2</sup>
Light points fed	7,5 per m <sup>2</sup> /day

### ECONOMIC BENEFITS BRATISLAVA\*

Value of the Renewable energy generated	892 € per m <sup>2</sup>
Return on investment	7,4 x
Internal rate of return (IRR)	19 %
Payback time	6 years
Building's value increase**	440 € per m <sup>2</sup>



# PV NOISE BARRIER

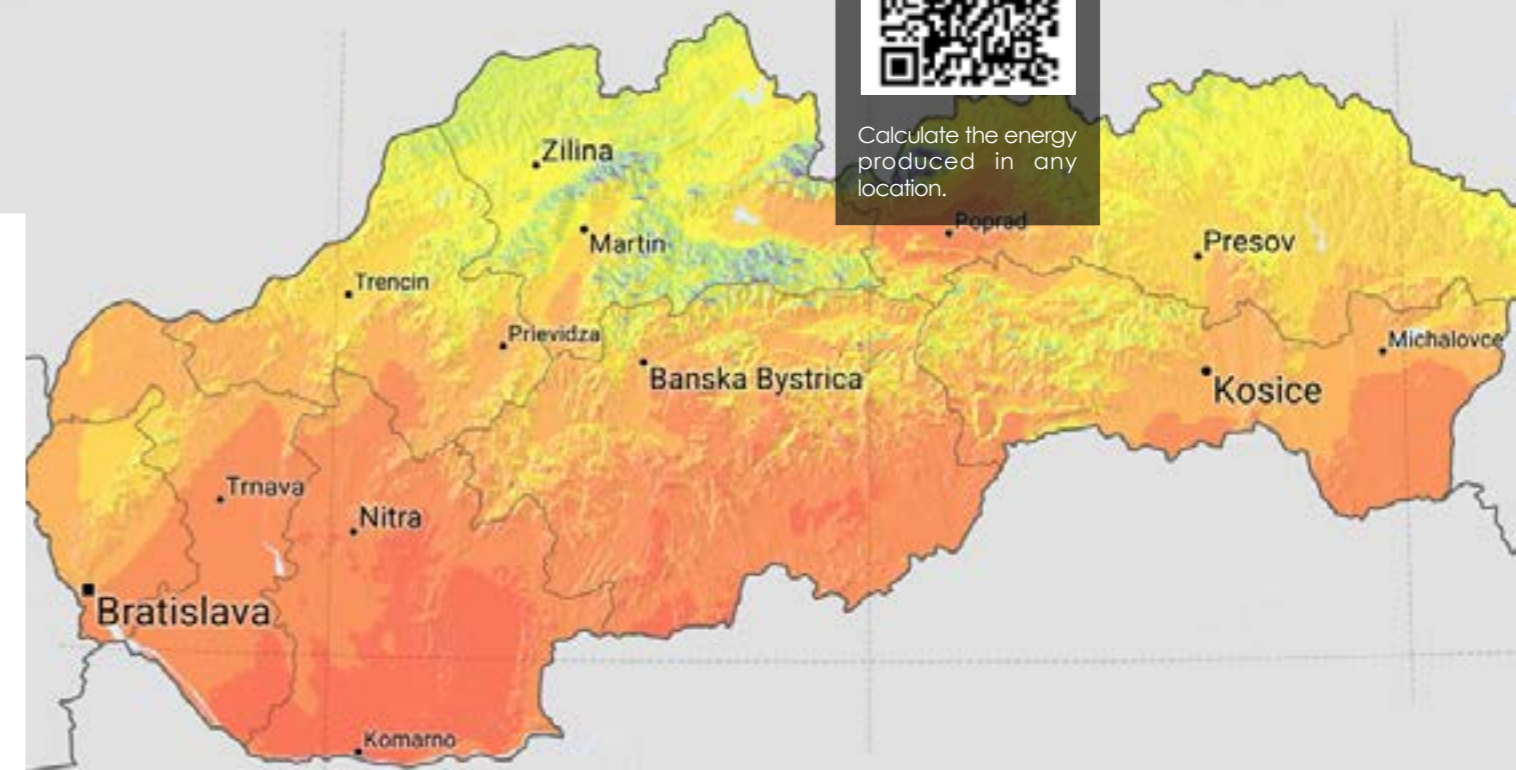
SLOVAKIA

CRYSTALLINE SILICON TECHNOLOGY

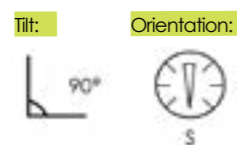
PV ESTIMATION TOOL



Calculate the energy produced in any location.



### DATA CONSIDERED FOR CALCULATIONS



### ENERGY LOSSES PER ORIENTATION



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

We plant one tree for every m<sup>2</sup> of PV glass we produce. Each tree absorbs an average of 10 Kg of CO<sub>2</sub> per year.

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# GLOBAL EPD

SCAN THE QR TO DOWNLOAD OUR EPD



**GlobalEPD**  
A VERIFIED ENVIRONMENTAL DECLARATION



Environmental  
Product  
Declaration

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

AENOR

CRYSTALLINE PHOTOVOLTAIC  
SOLAR GLASS

GiGM07244  
GiGM07211  
GiGM03644  
GiGM1608A

First publication date: 31-01-2024  
Expiry date: 30-01-2029

The declared validity is to registration and publication on [www.aenor.com](http://www.aenor.com)

GlobalEPD Code: GlobalEPD EN15804-063

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**.



**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 15804 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).



» ISRAEL



» ESPAÑA



» EEUU



» DUBAI



» FRANCIA



» ESLOVAQUIA



» ESPAÑA



» ESPAÑA



» ARABIA SAUDITA



» MEXICO



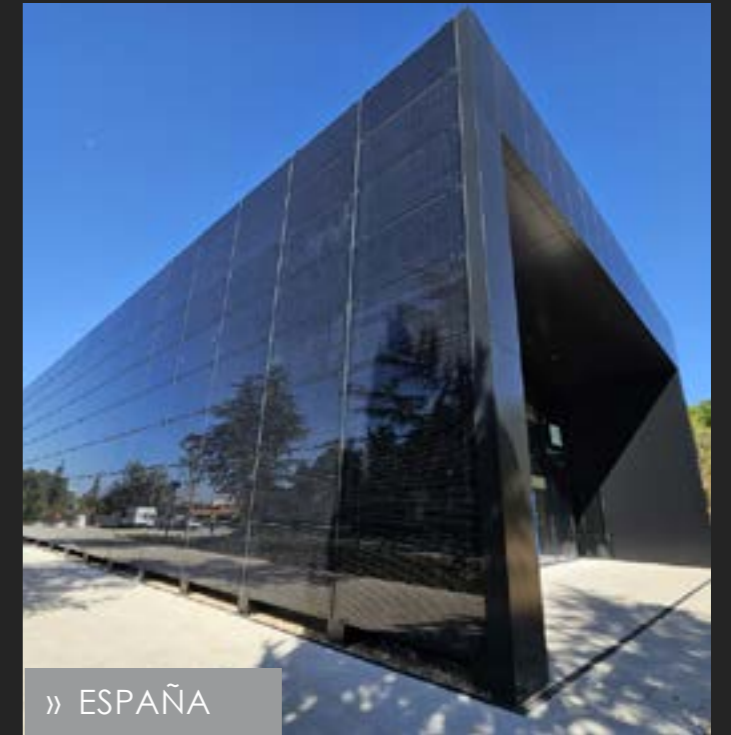
» NIGERIA



» PAÍSES BAJOS



» EEUU



» ESPAÑA



» EEUU



» DUBAI



» DINAMARCA



» EEUU



» EEUU



» EEUU

# 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?

- ✓ **Energy Generation:** PV glass generates clean electricity from sunlight, reducing your reliance on traditional power sources.
- ✓ **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<sub>2</sub> 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.



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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 PVSYS 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.