

FEASIBILITY STUDIES

DISCOVER DIFFERENT CONSTRUCTIVE SOLUTIONS IN NORWAY

FEASIBILITY STUDY OSLO

HIDDEN PV IN WHITE COLOR

- INTENSE GREEN
100 W/M²
- WHITE
110 W/M²
- MARBLE BROWN
115 W/M²
- DEEP BLUE
160 W/M²

CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	2.059 KWh per m ²
Kg of CO ₂ avoided	33,78 Kg per m ²
Kilometres driven in an electric car	11.843 Km per m ²
Light points fed	4 per m ² /day

ECONOMIC BENEFITS OSLO*

Value of the renewable energy	524 € per m ²
Return on investment	4 times
Internal rate of return (IRR)	10,78 %
Payback time	10 years
Building's value increase**	259 € per m ²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	2.037 KWh per m ²
Payback time (Tromso)	10 years

DATA CONSIDERED FOR CALCULATIONS

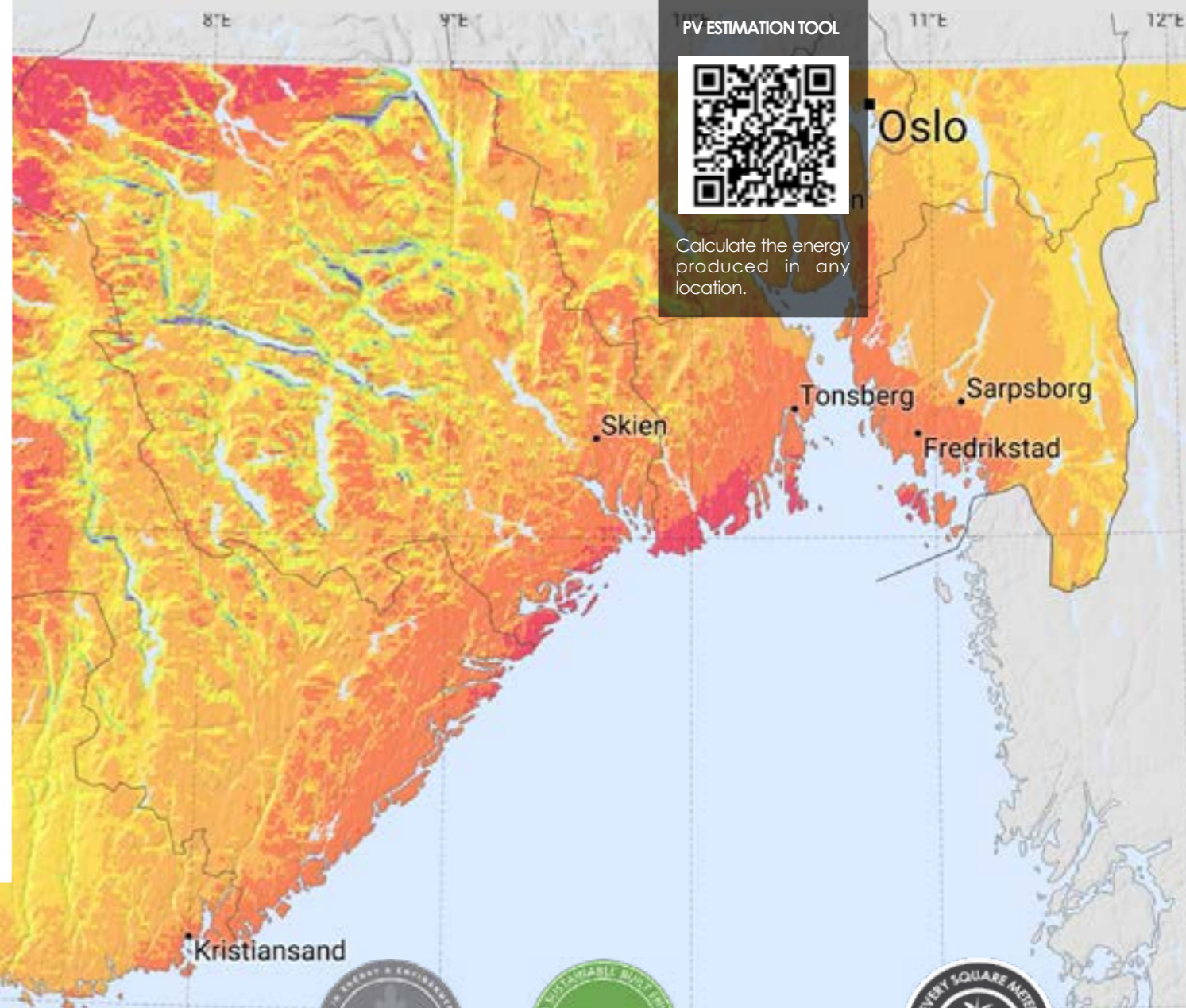
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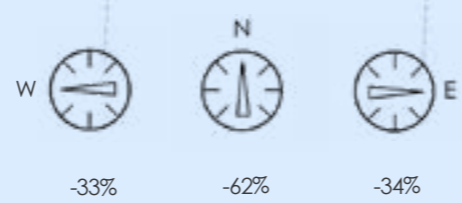
PV FAÇADE / BALCONY

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



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 CO₂ 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 OSLO

HIDDEN PV IN WHITE COLOR

- INTENSE GREEN
100 W/M²
- WHITE
110 W/M²
- MARBLE BROWN
115 W/M²
- DEEP BLUE
160 W/M²

CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	2.752 KWh per m ²
Kg of CO ₂ avoided	45,14 Kg per m ²
Kilometres driven in an electric car	15.827 Km per m ²
Light points fed	5 per m ² /day

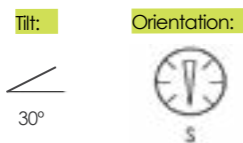
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	701 € per m ²
Return on investment	5,5 times
Internal rate of return (IRR)	14,47%
Payback time	8 years
Building's value increase**	346 € per m ²

RESULTS IN OTHER LOCATIONS OF NORWAY

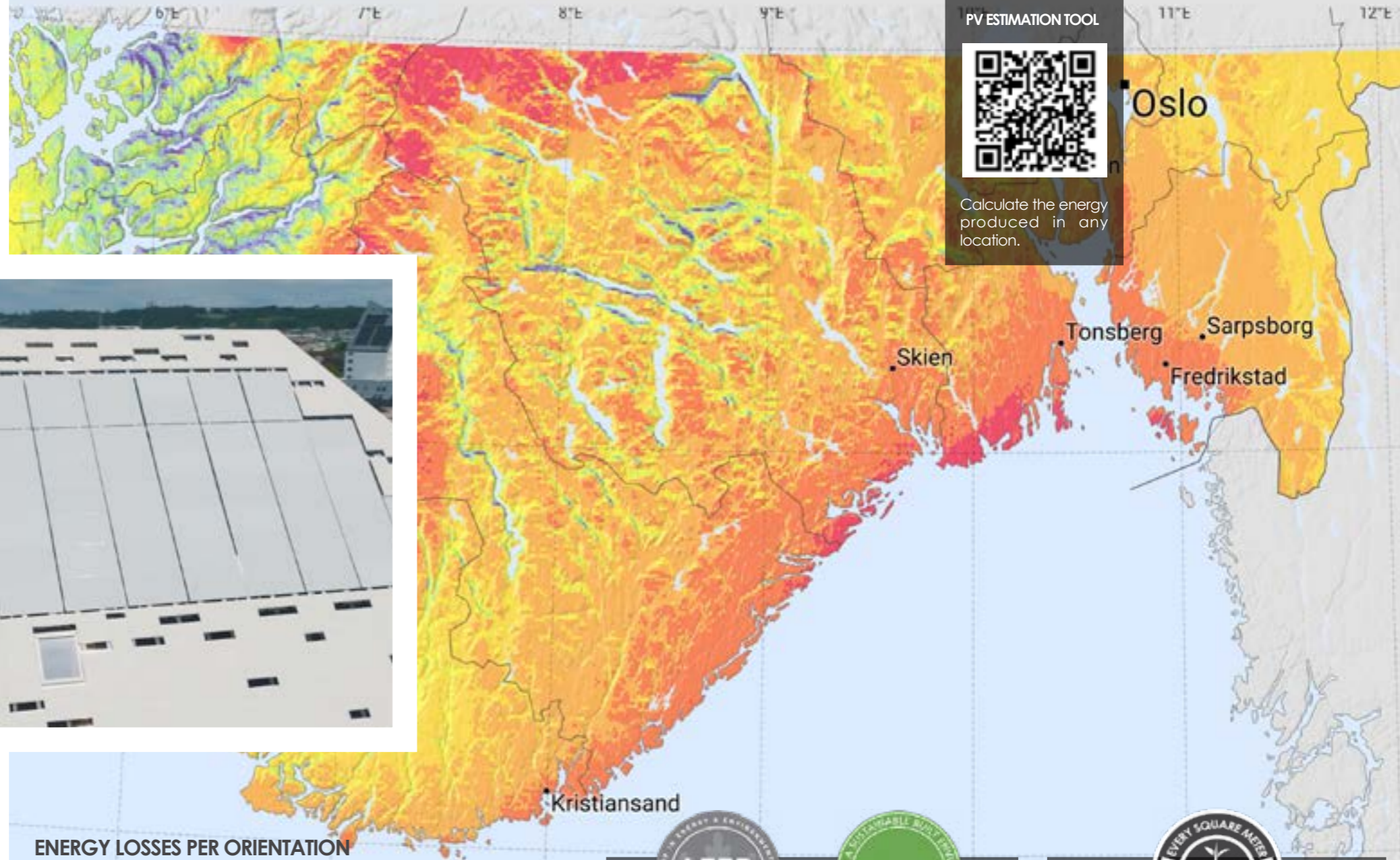
Renewable energy (Tromso)	2.725 KWh per m ²
Payback time (Tromso)	8 years

DATA CONSIDERED FOR CALCULATIONS

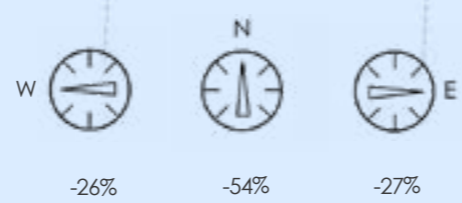


HIDDEN PV ROOF NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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Data Calculated for a 35-year useful life.

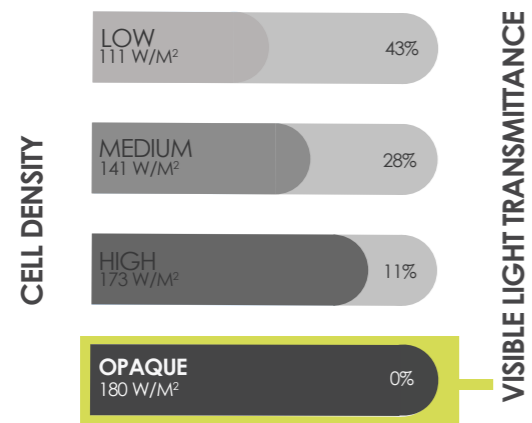
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FEASIBILITY STUDY OSLO

OPAQUE PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	3.370 KWh per m ²
Kg of CO ₂ avoided	55 Kg per m ²
Kilometres driven in an electric car	19.379 Km per m ²
Light points fed	6,6 per m ² /day

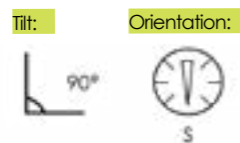
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	858 € per m ²
Return on investment	5,76 times
Internal rate of return (IRR)	14,98%
Payback time	7 years
Building's value increase**	424 € per m ²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	3.338 KWh per m ²
Payback time (Tromso)	7 years

DATA CONSIDERED FOR CALCULATIONS



PV DOUBLE SKIN / SPANDREL NORWAY

CRYSTALLINE SILICON TECHNOLOGY

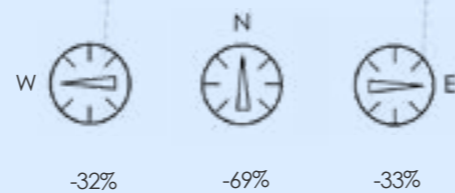


PV ESTIMATION TOOL

Calculate the energy produced in any location.



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 CO₂ per year.

Data Calculated for a 35-year useful life.

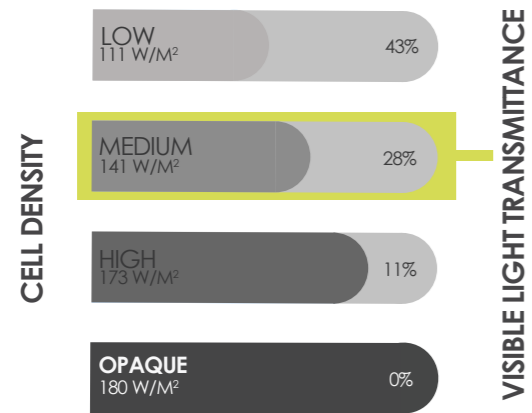
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FEASIBILITY STUDY OSLO

MEDIUM CELL DENSITY PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	2.640 KWh per m²
Kg of CO ₂ avoided	43 Kg per m²
Kilometres driven in an electric car	15.180 Km per m²
Light points fed	5,19 per m²/day

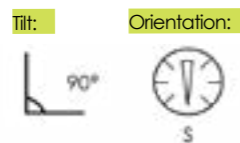
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	672 € per m²
Return on investment	3,47 times
Internal rate of return (IRR)	8,86%
Payback time	12 years
Building's value increase**	332 € per m²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	2.613 KWh per m²
Payback time (Tromso)	12 years

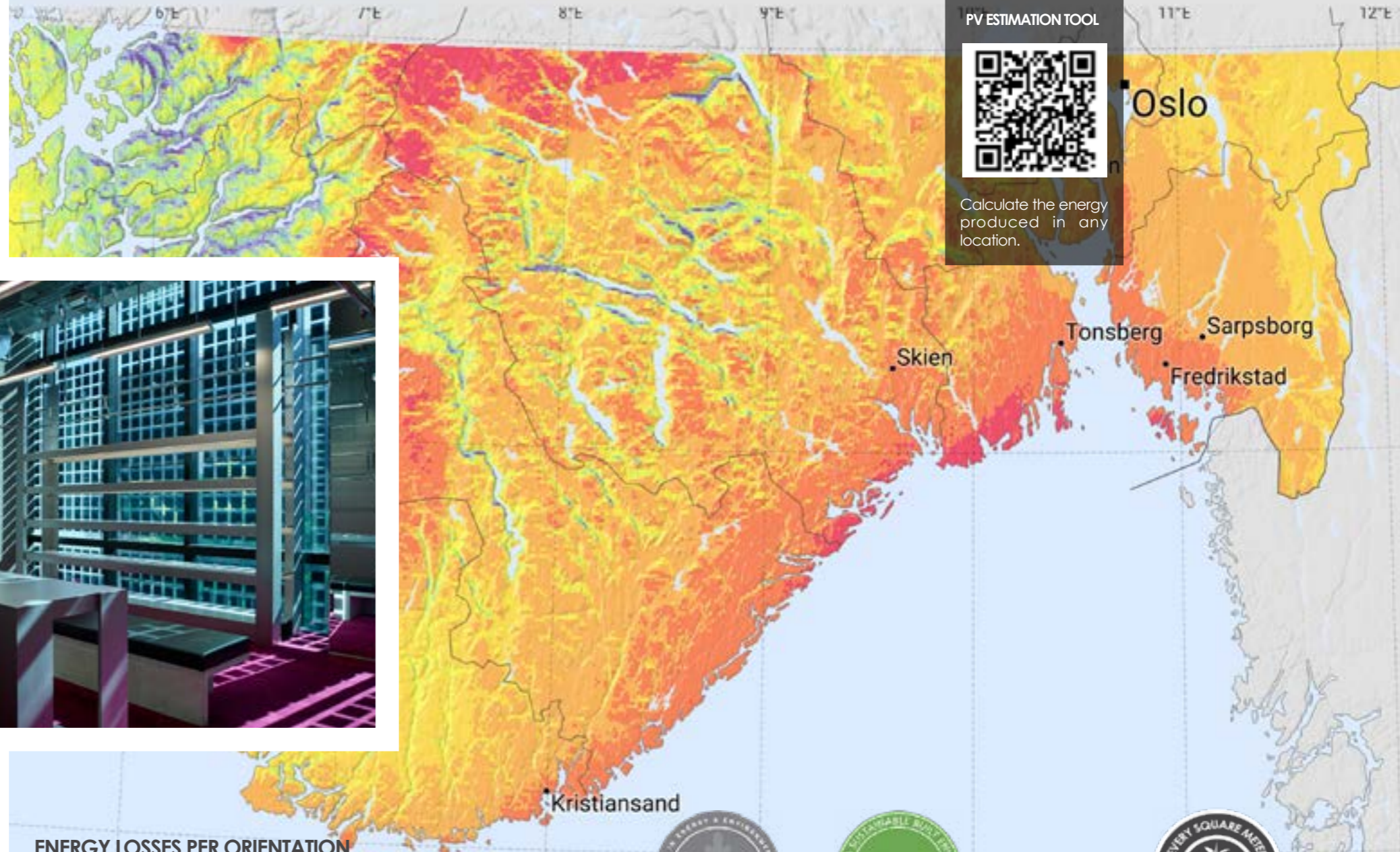
DATA CONSIDERED FOR CALCULATIONS



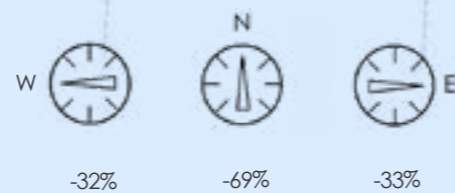
PV CURTAIN WALL

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO₂ per year.

Data Calculated for a 35-year useful life.

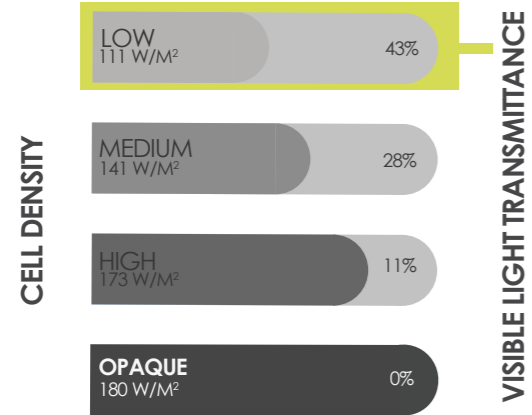
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FEASIBILITY STUDY OSLO

LOW CELL DENSITY PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	2.078 KWh per m²
Kg of CO ₂ avoided	34 Kg per m²
Kilometres driven in an electric car	11.951 Km per m²
Light points fed	4 per m²/day

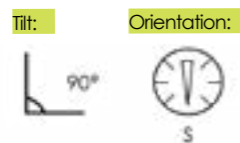
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	529 € per m²
Return on investment	3 times
Internal rate of return (IRR)	8 %
Payback time	13 years
Building's value increase**	261 € per m²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	2.057 KWh per m²
Payback time (Tromso)	13 years

DATA CONSIDERED FOR CALCULATIONS

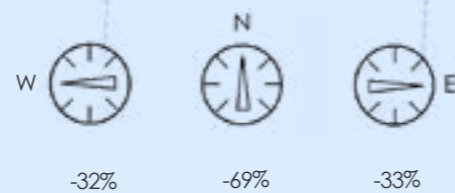


PV BALUSTRADE / BALCONY NORWAY

CRYSTALLINE SILICON TECHNOLOGY



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 CO₂ per year.

Data Calculated for a 35-year useful life.

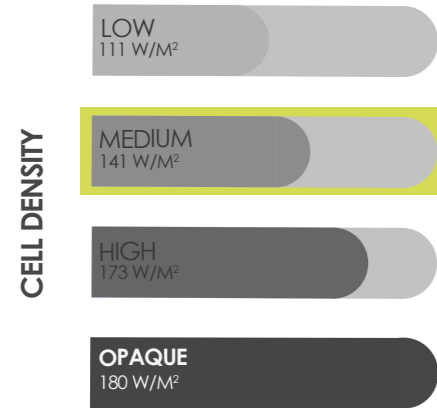
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FEASIBILITY STUDY OSLO

OPAQUE PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	2.871 kWh per m²
Kg of CO ₂ avoided	47 Kg per m²
Kilometres driven in an electric car	16.509 Km per m²
Light points fed	5,64 per m²/day

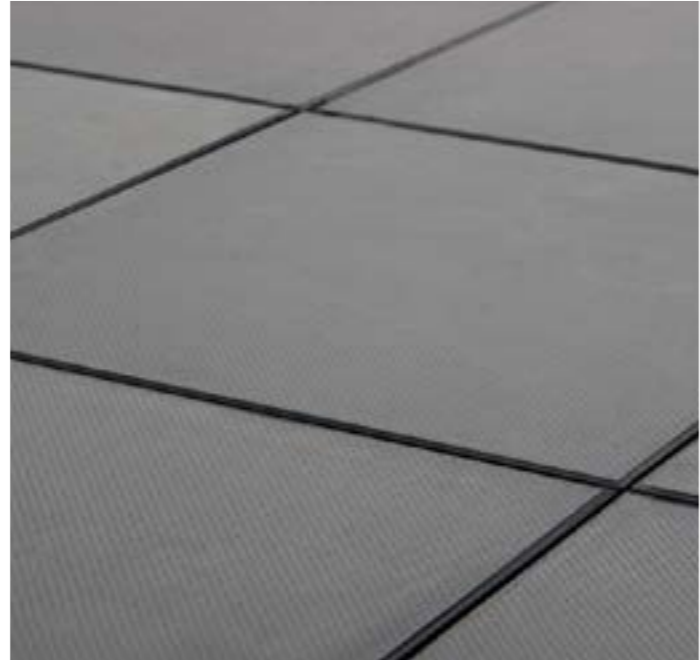
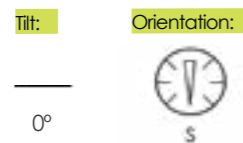
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	731 € per m²
Return on investment	5 times
Internal rate of return (IRR)	13%
Payback time	8 years
Building's value increase**	361 € per m²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	2.860 kWh per m²
Payback time (Tromso)	8 years

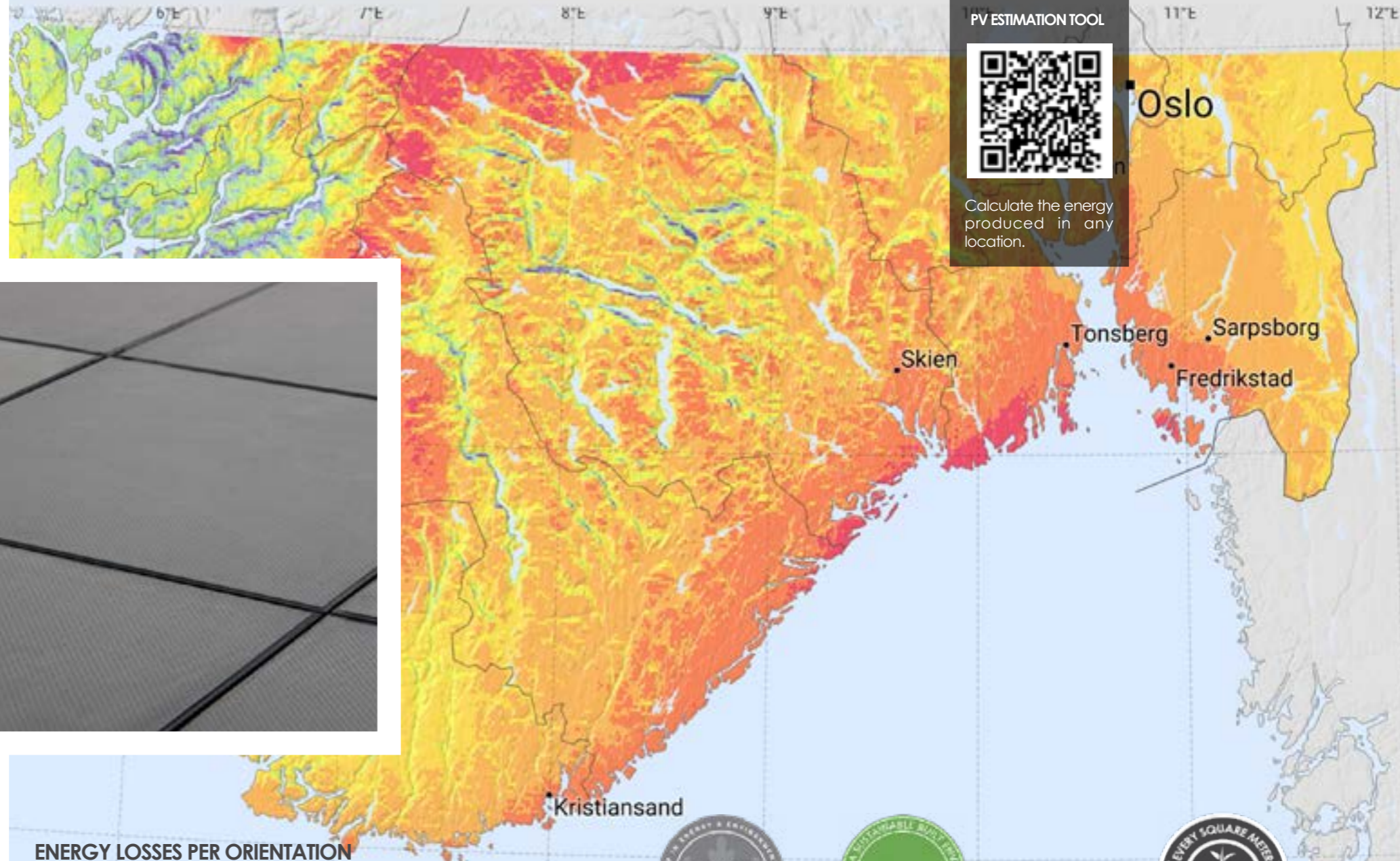
DATA CONSIDERED FOR CALCULATIONS



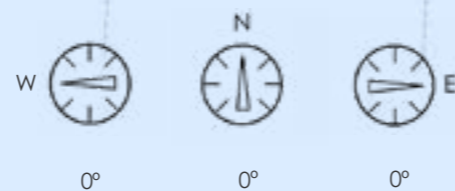
WALKABLE PV FLOOR

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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Data Calculated for a 35-year useful life.

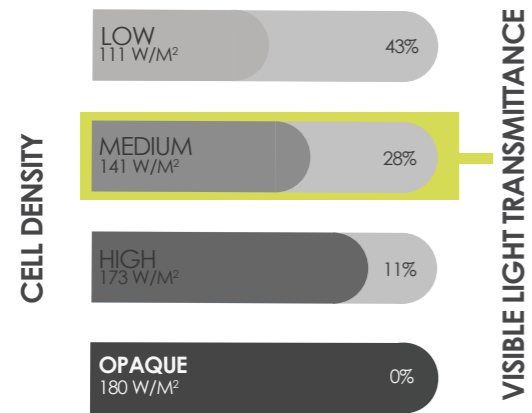
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FEASIBILITY STUDY OSLO

MEDIUM CELL DENSITY PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	3.528 KWh per m²
Kg of CO ₂ avoided	57,86 Kg per m²
Kilometres driven in an electric car	20.287 Km per m²
Light points fed	7 per m²/day

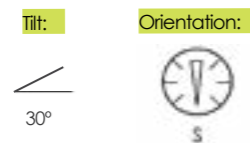
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	898 € per m²
Return on investment	6,62 times
Internal rate of return (IRR)	17,18%
Payback time	6 years
Building's value increase**	444 € per m²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	3.497 KWh per m²
Payback time (Tromso)	6 years

DATA CONSIDERED FOR CALCULATIONS



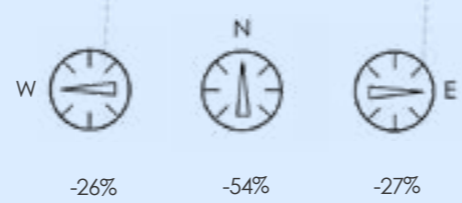
PV SKYLIGHT

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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We plant one tree for every m² of PV glass we produce. Each tree absorbs an average of 10 Kg of CO₂ per year.

Data Calculated for a 35-year useful life.

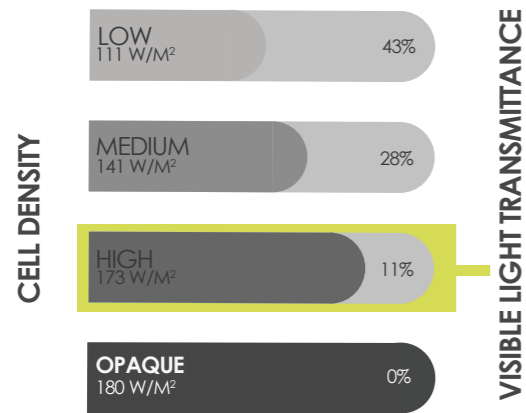
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FEASIBILITY STUDY OSLO

HIGH CELL DENSITY



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	3.549 KWh per m ²
Kg of CO ₂ avoided	58 Kg per m ²
Kilometres driven in an electric car	20.407 Km per m ²
Light points fed	7 per m ² /day

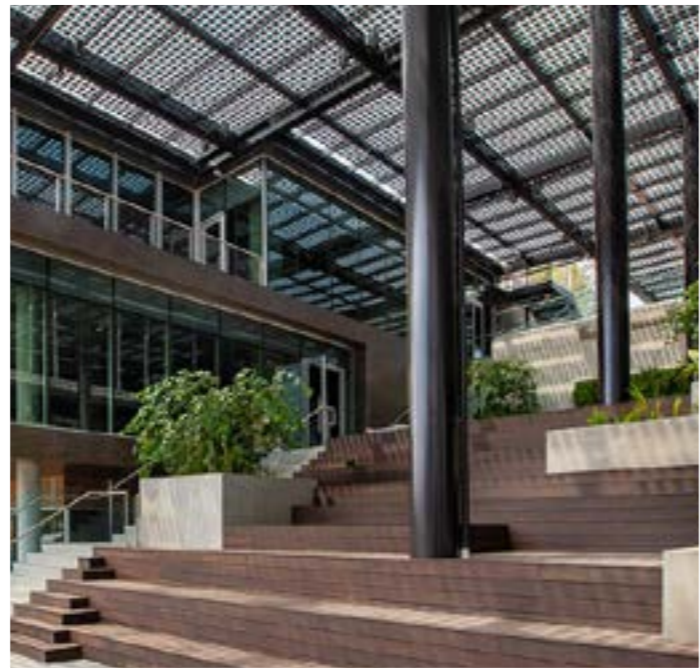
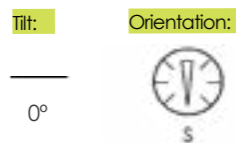
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	903 € per m ²
Return on investment	6,24 times
Internal rate of return (IRR)	16,21%
Payback time	7 years
Building's value increase**	446 € per m ²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	3.516 KWh per m ²
Payback time (Tromso)	7 years

DATA CONSIDERED FOR CALCULATIONS



PV CANOPY

NORWAY

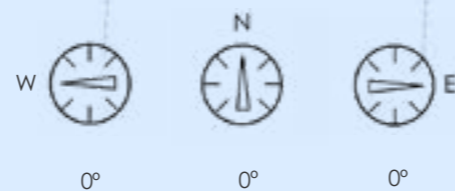
CRYSTALLINE SILICON TECHNOLOGY



PV ESTIMATION TOOL

Calculate the energy produced in any location.

ENERGY LOSSES PER ORIENTATION



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Data Calculated for a 35-year useful life.

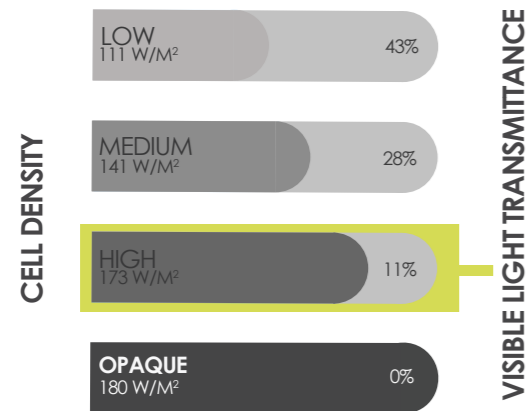
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FEASIBILITY STUDY OSLO

HIGH CELL DENSITY PV GLASS



CHARACTERISTICS OF THE GLASS

Peak Power (Wp/m²)	173 Wp per m²
Visible light transmittance	11%

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	4.329 KWh per m²
Kg of CO ₂ avoided	71 Kg per m²
Kilometres driven in an electric car	24.892 Km per m²
Light points fed	8,5 per m²/day

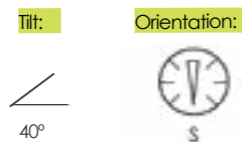
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	1.102 € per m²
Return on investment	7,61 times
Internal rate of return (IRR)	19,67%
Payback time	6 years
Building's value increase**	544 € per m²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	4.289 KWh per m²
Payback time (Tromso)	6 years

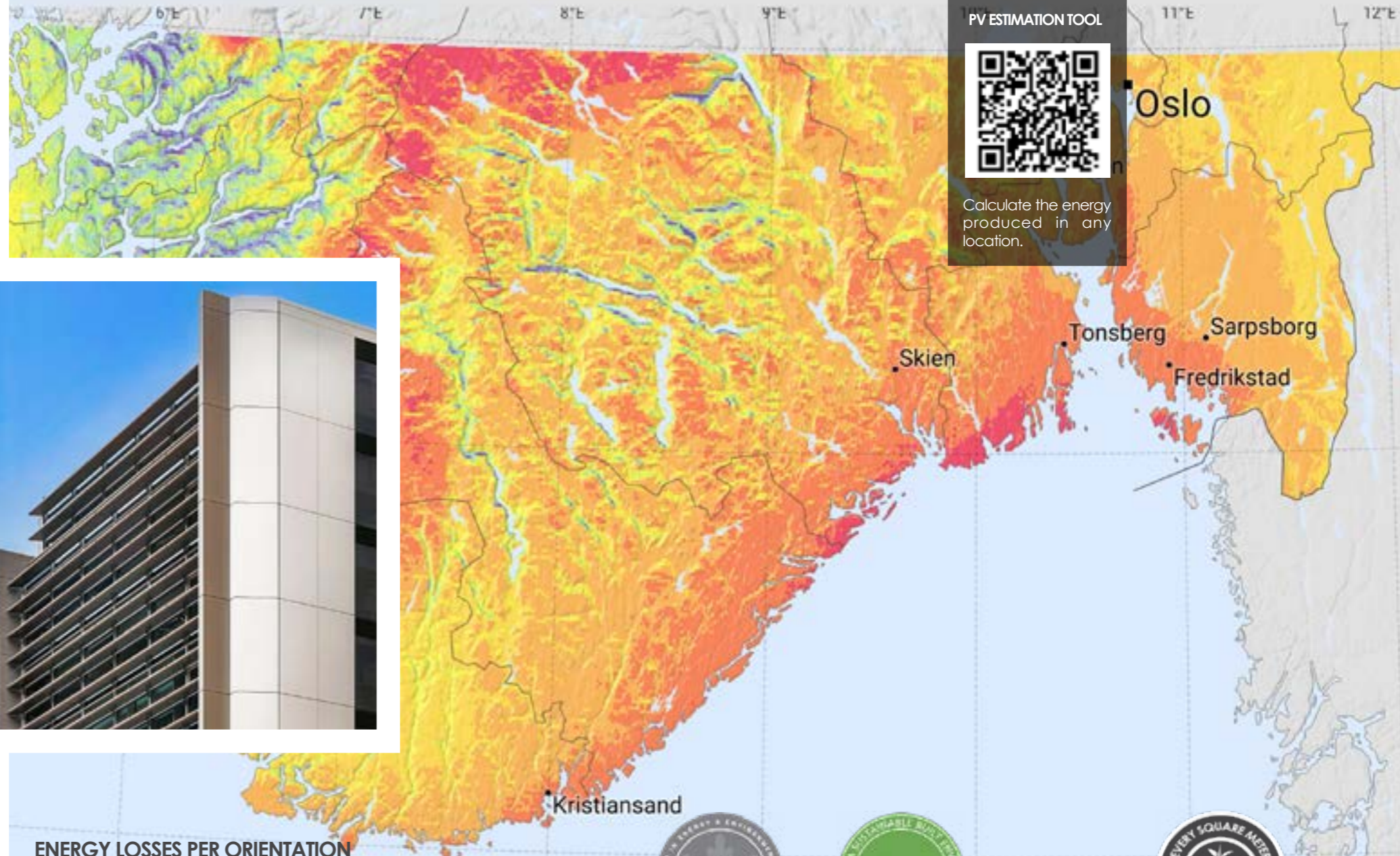
DATA CONSIDERED FOR CALCULATIONS



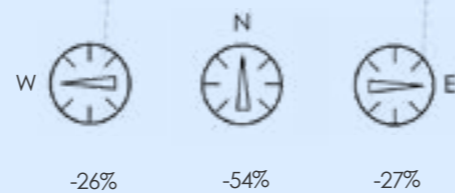
PV BRISE SOLEIL

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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Data Calculated for a 35-year useful life.

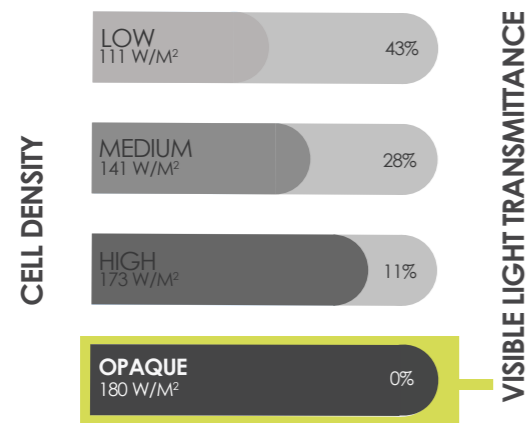
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FEASIBILITY STUDY OSLO

OPAQUE PV GLASS



CHARACTERISTICS OF THE GLASS

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

ENVIRONMENTAL BENEFITS OSLO

Renewable energy	3.370 KWh per m ²
Kg of CO ₂ avoided	55 Kg per m ²
Kilometres driven in an electric car	19.379 Km per m ²
Light points fed	6,6 per m ² /day

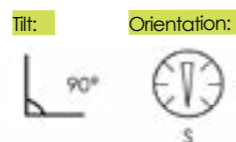
ECONOMIC BENEFITS OSLO*

Value of the renewable energy	858 € per m ²
Return on investment	5,2 times
Internal rate of return (IRR)	13,45%
Payback time	8 years
Building's value increase**	424 € per m ²

RESULTS IN OTHER LOCATIONS OF NORWAY

Renewable energy (Tromso)	3.332 KWh per m ²
Payback time (Tromso)	8 years

DATA CONSIDERED FOR CALCULATIONS



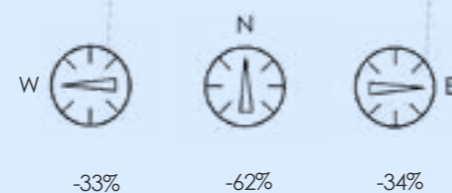
PV NOISE BARRIER

NORWAY

CRYSTALLINE SILICON TECHNOLOGY



ENERGY LOSSES PER ORIENTATION



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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**.



GlobalEPD
A VERIFIED ENVIRONMENTAL DECLARATION



Environmental
Product
Declaration

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

AENOR

CRYSTALLINE PHOTOVOLTAIC
SOLAR GLASS

Gi/GM07244
 Gi/GM07211
 Gi/GM03644
 Gi/GM01688A

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

The declared validity is to registration and publication on www.epd.org

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).



» ISRAEL



» ESPAÑA



» EEUU



» DUBAI



» FRANCIA



» ESLOVAQUIA



» ESPAÑA



» ESPAÑA



» ARABIA SAUDITA



» MEXICO



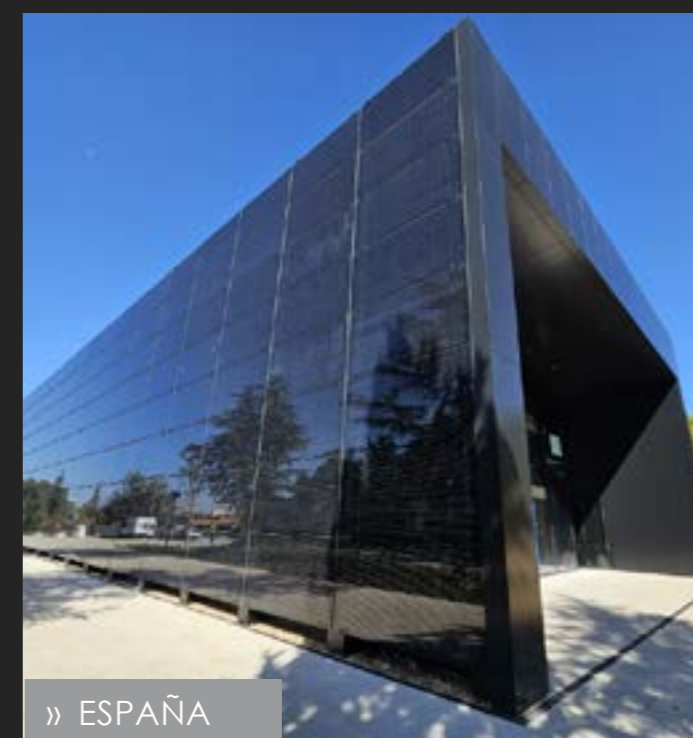
» NIGERIA



» PAÍSES BAJOS



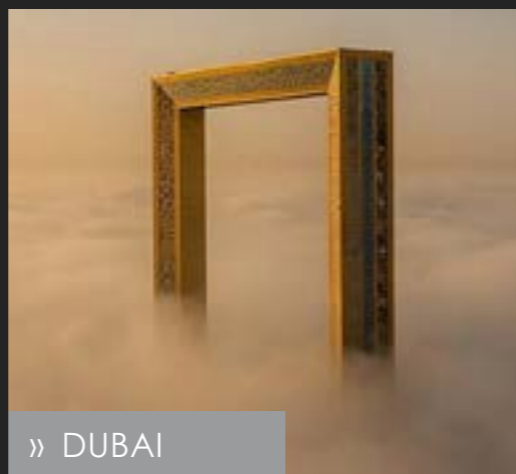
» EEUU



» ESPAÑA



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» DUBAI



» DINAMARCA



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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.
- **CO₂ 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.