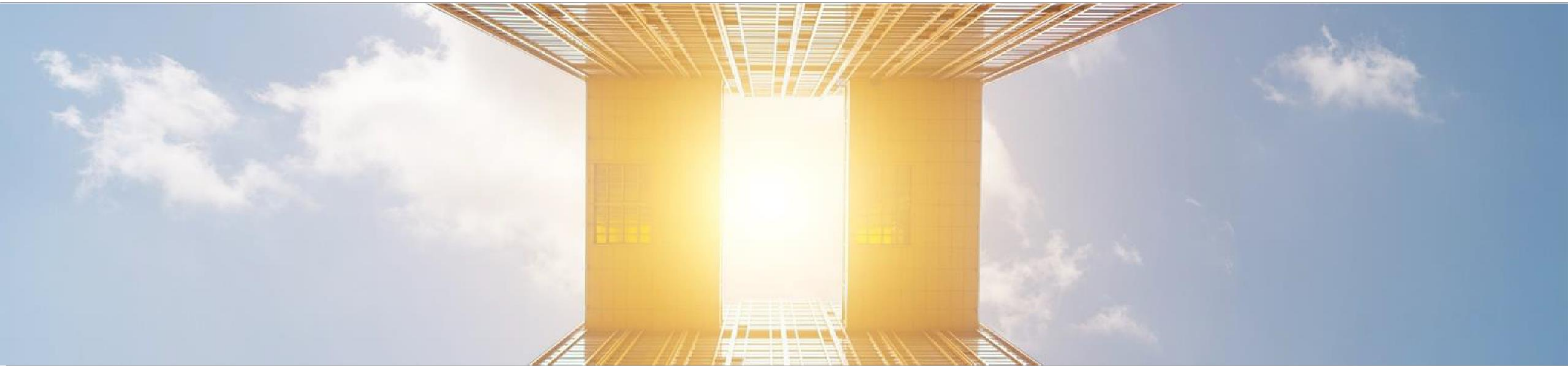
TECNOLOGIA IPTG - INSULATING PHOTOVOLTAIC TRANSPARENT GLASS



COMPANY **PRESENTATION**

GLASS to POWER

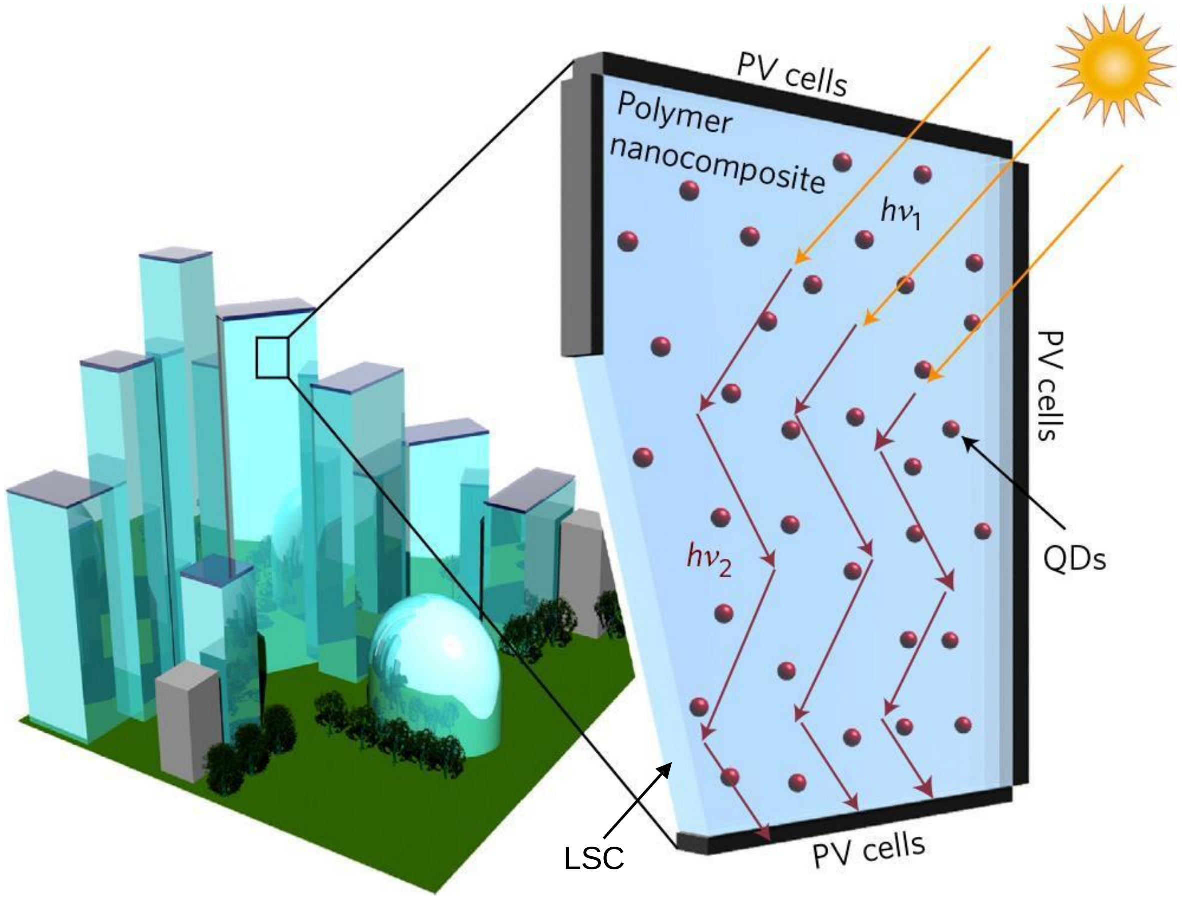
Glass to Power is an innovative company that invented **Insulating Photovoltaic Transparent Glass (IPTG)**, a patented technology that enables significant energy efficiency over a long period of time.
The technology is based on inorganic nanoparticles that have the advantage of not deteriorating in the weather and light. Glass to Power has dedicated years of research to improve the performance of photovoltaic glazing and now the product is a revolutionary solution for builders and designers to achieve structural active glass facades that contribute to the energy independence of the building.

Established on 28 September **2016** as a spin-off of the University Milano Bicocca, Glass to Power has been one of the most important start-up in Europe. Several international **awards and recognitions** testify to the great interest of the academic and industrial world in the technology discovered and marketed by Glass to Power.

The inorganic nanoparticles produced by Glass to Power are inglobated into PMMA plastic sheets, to obtain the **LSCs (Luminescent Solar Concentrators)**. The inorganic nanoparticles made by Glass to Power have the characteristic that, when hit by a photon of sunlight, they re-emit photons of a longer wavelength, in the infrared, and thus decouple the absorption process from the re-emission process.

In this way, the infrared photons, trapped in the light guide of the **PMMA**, are all concentrated on the edge of the PMMA sheet, where they are converted into an electric current through thin photovoltaic cells glued to the edge of the PMMA sheet.

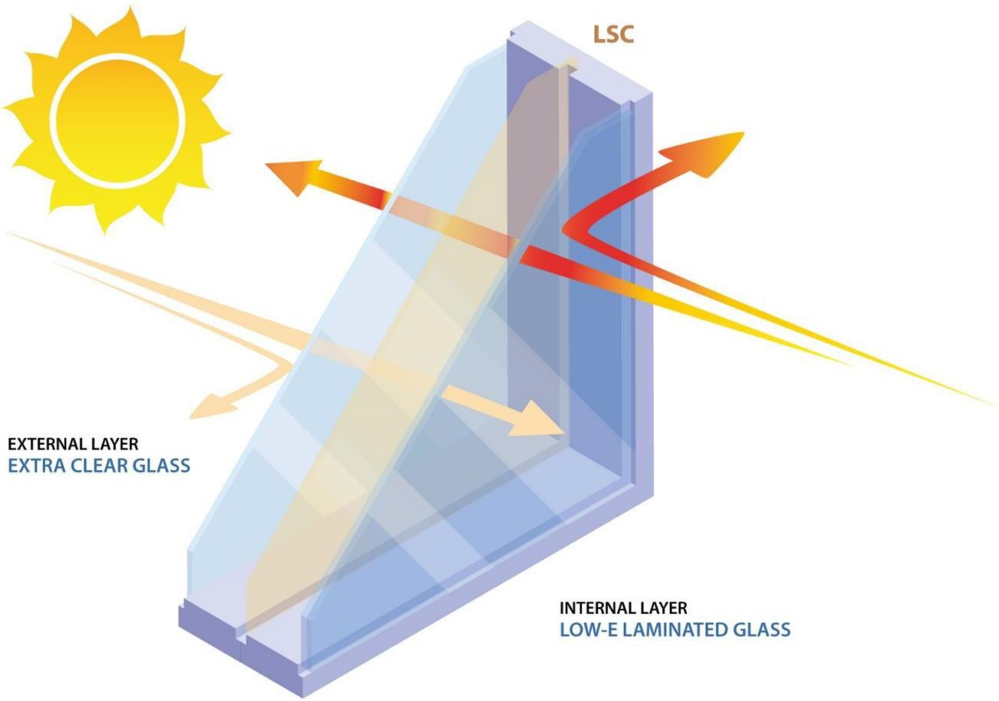
Glass to Power's proprietary patents developed by Professors Sergio Brovelli and Francesco Meinardi of the University of Milan Bicocca have decisively improved the LSC technology. All patents are now the exclusive property of Glass to Power.



The **Building-Integrated Photovoltaics** (BIPVs) system consists of integrating photovoltaic modules into the building envelope, such as roofs or facades. BIPV systems can generate cost savings by reducing the use of fossil fuels and CO_2 emissions and adding architectural value to buildings.

These advantages make BIPVs one of the fastest growing sectors in the photovoltaic industry. **The IPTG Glass to Power's technology** is a plus for architects, engineers and builders since:

- Helps reaching nZEB requirements
- It is a totally transparent BIPV product for curtain walls and glazing
- No compromise between aesthetics and energy efficiency (typical of standard BIPV products)
- Customizable in shapes, sizes and transparency
- Easy to install, similar to traditional insulating glass units
- Applicable to different types of buildings



GLASS TO POWER NANOFARM IN ROVERETO (TN)

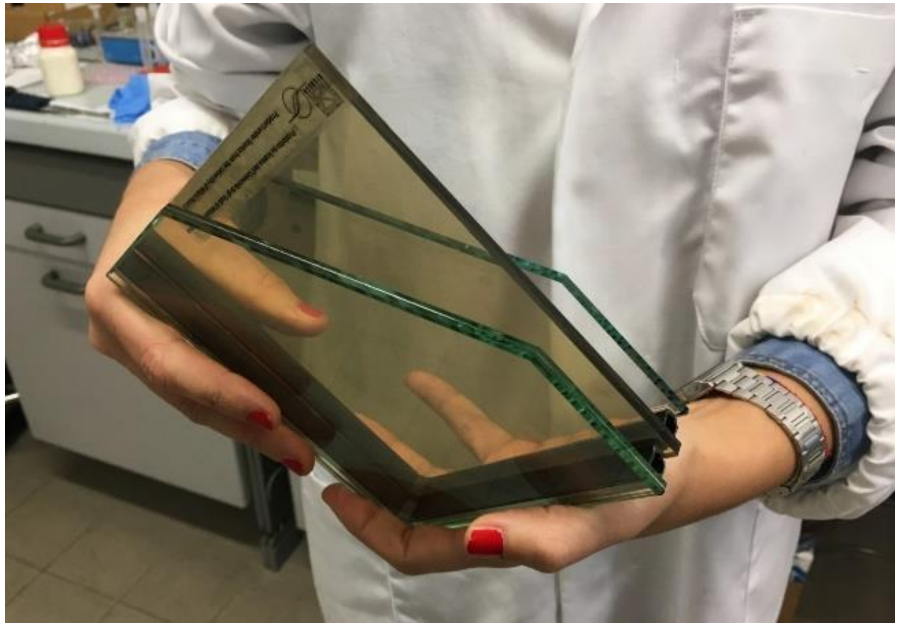
La **NanoFarm** di Glass To Power a Rovereto (Italia) è la sede della squadra tecnica e di produzione.

The **technical team** deals with the production of nanoparticles. The reactor in the picture has been designed, built and tested by the Company.

The plant allows a **scalable production**, according to the market needs, increasing the machines to be connected to daisy-chain.

GLASS TO POWER RESEARCH TEAM IN MILAN

The **research team** works in **Milan Bicocca University** on the possible evolutions of the Glass to Power technology, focusing on the constant evolution of the product in terms of **performance, efficiency and duration**.



GLASS TO POWER IPTG TECHNOLOGY

Glass to Power **IPTG (Insulating Photovoltaic Transparent Glass)** technology is able to produce electricity through solar radiation. An innovative product that updates the design standards of structural glass buildings and all those buildings in which the glass element actively produces energy.

Glass to Power's photovoltaic double glazing is a revolutionary component that **combines photovoltaic and thermal / acoustic insulation functions**, as in the latest generation insulating glass units.

The product is eco-sustainable and its disassembled components can be reused n-times, according to the new ideas of circular economy. An extraordinary opportunity for designers and builders, in the construction of eco-sustainable buildings autonomous from an energy standpoint. **Glass to Power's insulating glass units** have customizable features and sizes, depending on the customer's design needs. An added value for ambitious buildings that anticipate and improve the future.

- **REDUCES ENERGY NEEDS**
- **GENERATES ENERGY FROM RENEWABLE SOURCES**
- **COMPLIANCE TO nZEB (near-*Zero Energy Building*) REQUIREMENTS ALLOWS**
- **ACCESS TO PHOTOVOLTAIC INCENTIVES**

- **ELECTRICITY PRODUCTION** up to **10 Wp/m2**

- **VARIABLE LIGHT TRANSMISSION (LT)** up to **70%**
  Quantity of visible light transmitted (UNI EN 410)

- **HIGH THERMAL INSULATION U** up to **0,5 W/m2 K**
  Internal / external exchanged heat flow (UNI EN 673)

- **SOLAR FACTOR g LOW** up to **0,42%**
  Ratio between transmitted and incident thermal energy (UNI EN 401)

PARTNER

CUSTOMERS

Euronext Paris has published an announcement on February 9, 2022 and transactions on G2P shares on Access + have taken place on **February 16, 2022**.

By listing its shares in Paris, **Glass to Power SpA** has increased the visibility of its patented technology of **Insulating Photovoltaic Transparent Glass (IPTG)** in Europe.

GLASS to POWER

2016
COMPANY FOUNDATION

2017
- INCREASE IN CAPITAL
- R&D FOCUS
- DEFINE THE POC

2018
- FROM SRL TO SPA
- PATENTS ACQUISITION
- CAPITAL INCREASE

2019
- NANOFARM SETUP
- INDUSTRIALIZATION

2020
- INDUSTRIALIZATION SCALEUP

2021
- PRODUCTS ARE CE BENCHMARKED
- IEC 61730 CERTIFICATION

2022
- GLASS TO POWER IS LISTED AT EURONEXT PARIS
- GO TO MARKET

AWARDS

- **R&D Award** - Washington D.C. (2016)
- **SetteGreen Award** – Milano (2016)
- **Special Award of the Italian Chamber of Commerce for Switzerland and Gold Medal** with the particular appreciation of the International Jury - 45th International Exhibition of Inventions in Geneva (2017)
- **Finalists at the Gaetano Marzotto Prize**, Marzotto Venture category. (2017)
- **Unicredit Start Lab**. Mentorship path and participation in the Unicredit Startup Academy. (2018)
- **Open Innovation for Circularity Award** from Cariplo Factory and the American Chamber of Commerce in Italy. (2018)
- **Mario Unnia – BDO Prize** (2018)
- **Innovation Business Award** in the Energy and Environment category of ANGI. (2019)
- **Fortune Italia Change the World Startup Award** (2020)

POLO MECCATRONICA
VIA FORTUNATO ZENI 8 – P43
ROVERETO (TN)

DIPARTIMENTO DI SCIENZE DEI MATERIALI
UNIVERSITÀ' DI MILANO BICOCCA
VIA ROBERTO COZZI 55, MILANO

GLASS to POWER

www.glasstopower.com