

The title "Opening a window onto the current flat glass market" is written in a large, white, sans-serif font. A small green horizontal line is positioned above the word "Opening". The text is centered on the page, with a background image of a modern office building with large glass windows and a balcony where a person is standing.

Opening a window onto the current **flat glass market**

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Industrial flat glass is a seemingly magical material with properties placing it at the center of nearly every important economic and environmentally friendly trend.

A recent Oaklins' webinar highlighted the versatility of glass and its key role in sustainable construction and the green revolution.

"A lot has happened in the past six to nine months" regarding flat glass, Valērija Lieģe told the webinar audience of more than 100 dealmakers from over 20 different countries. Previously, said Lieģe, the event's moderator, the industry's focus was on new construction. New buildings that emphasized natural lighting and designs featuring numerous and very large windows were pushing the market forward.

"But now we've entered a period where the market for new construction is increasingly uncertain," the Oaklins specialist highlighted. This has led a growing number of glassmakers to switch their focus to renovation projects, which they see as a more reliable source of demand, especially for insulated glass. The main reason for this is the intense pressure on building owners and operators to make existing buildings more energy-efficient, as a result of the spiking cost of energy. Another driver for these projects is that public funds can provide subsidies to many of them to support their execution.

"Since 2018, when I worked on my first glass transaction, the glass industry has had a strong M&A track record, driven in particular by financial investors carrying out a buy-and-build strategy. This interest ramped up the competition and appetite for glass transactions. But in the last few months, with the inflationary background and increasing energy prices, we have heard directly opposing viewpoints in regards to market outlook, investment plans and attitudes in general. In this webinar, we heard directly from industry insiders, and found out where, at least among the participants, the consensus lies."

VALĒRIJA LIEĢE

GLASS PROCESSING & FINISHING SPECIALIST
OAKLINS



The Oaklins Glass Processing & Finishing Panel



Clockwise from top left: Bettina Heuter (Marketing Director, Glassglobal Network), Valērija Lieģe (Oaklins Glass Processing & Finishing Specialist), Ulrich Brahm (CEO, Caleoglas), Vidur Kapur (Associate Director, Oaklins TM Capital)

At the end of last year, Oaklins hosted a webinar focused on the flat glass market, an industry that has faced a particularly challenging time in recent months. The aim was to hear from a range of glass and business specialists to get their take on the status of the sector and what the future might hold for it. The speakers were: Bettina Heuter, marketing director of Glassglobal Group, Ulrich Brahm, CEO of Caleoglas, and Vidur Kapur, associate director at Oaklins TM Capital in the US, while our glass processing & finishing specialist, Valerija Lieģe, acted as moderator. On page 5, you can find a link to watch the webinar — below we provide an overview of some of the key points raised during the session.

SEEKING GREATER ENERGY EFFICIENCIES

Across the industry, glass customers are seeking greater energy efficiencies. Regulatory requirements to reduce the building industry's carbon footprint were already driving interest in

energy-efficient glass, including products like low emissivity (low-e) windows. But with energy prices skyrocketing, controlling energy costs has become the primary concern among building operators, leading to heightened demand for solar control glass.

Skyrocketing energy prices have caused demand for solar control glass to soar.

Another key industry trend is a push for greater automation. This has always been an important concern within the sector, especially in developed economies where labor is more expensive. But now, Lieģe said, with inflation on the rise, "We see companies thinking more about how to improve their labor productivity and reduce their operating costs."

One technology that will play a vital role in this push towards automation is the

Internet of Things, allowing for better and more flexible production, workforce planning, reporting of results and time to market.

Manufacturers are also seeking other ways to innovate and improve the versatility of their products. The use of value-added coatings and other glass processing methods, our specialist said, "will transform the industry and lead to the emergence of high-value, high-growth subsectors." From an M&A standpoint, she added, "This type of innovation will increase glass makers' margins, making them more attractive to potential buyers."

During 2022, our moderator continued, glass producers have also sought to maintain greater control of their supply chains as a way to manage their risks. Potential energy and raw material shortages and price hikes have increased the likelihood of production bottlenecks, and this uncertainty "has pushed glass makers to more actively engage in supply chain management and price in the risks."

FLAT GLASS M&A

Globally, since 2016, there has been an average of 12 to 20 M&A deals per year in the flat glass sector. Starting around 2018, Liege said, the industry began drawing more attention from investors, as it gained recognition from private equity firms as an interesting place for investment. In 2020, there was a drop in deal volume due to COVID-19, but in 2021 and 2022 there has been a huge rebound in the number of transactions.

Based on Oaklins data, 2022 has been a record year for the number of glass deals done.

Today, the majority of the buyers active in the segment are private equity firms, and the lion's share of the activity is taking place in Europe.



VALERIJA LIEGE
Oaklins Glass Processing
& Finishing Specialist

Globally, since 2016, there has been an average of **12 to 20 M&A deals per year** in the flat glass sector.

Architectural glass deals



GEOGRAPHY OF GLASS PRODUCTION

Worldwide, according to Bettina Heuter, marketing director for the Glassglobal Group, there are over 580 flat glass furnaces producing both float and patterned glass in more than 320 locations. These are concentrated in Europe and Asia, especially China, which is the world's leading flat glass producer. Overall, Heuter said, there are more than 107 million tonnes of annual production capacity worldwide. Significantly, Africa, while still a relatively minor player in the market, is rapidly gaining ground as a flat glass producer and looks likely to have a significant share of global glass production going forward.

In Europe, there are approximately 80 float glass furnaces in over 60 locations, the largest of which are in the United Kingdom. Across the continent, more than 18 million tonnes of glass are produced each year.

TYPES OF FLAT GLASS

Flat glass, Heuter explained, is categorized by type with float and patterned the two major categories. Float refers to the production method of manufacturing plate glass by "floating" it over a bed of molten tin, while patterned glass, which is used for both decorative and solar applications, is produced by passing molten glass through a pair of water-cooled rollers.

Glass subcategories are defined by production method, such as laminated, tempered, ceramic and bent glass, and



BETTINA HEUTER
Marketing Director
Glassglobal Group

by application, which includes interior building, exterior building, marine and transport (of which automotive is the prime example).

Other specialty types of glass have environmental applications, such as insulated glass & photovoltaic glass, which actually produces energy from sunlight.

Worldwide, there are over **580 flat glass furnaces** in more than **320 locations**.

Currently, flat glass prices are climbing due to the enormous increase in manufacturing costs. This is especially true in Europe, where energy surcharges for glass production are soaring. One European glass maker has already been forced to shutter a factory because of spiraling energy costs.

Source: Oaklins analysis, based on data from Mergermarket and Pitchbook

In addition to this cost crisis, the flat glass supply chain is currently facing several other urgent challenges. These include:

- **Difficulties procuring raw materials and equipment.** This is especially true for European producers dependent on suppliers in eastern Europe that have been impacted by the war in Ukraine.
- **Meeting carbon-neutral production requirements.** To this end, a complex transition is underway, where glass factories are increasingly making use of hydrogen as an alternative heating and reducing agent.
- **Installing air filtration and water recirculation systems** to meet sustainability goals.
- **Finding and recruiting qualified staff.**
- **Coping with rising labor costs.**

On a more promising note, a bright spot for the industry is the rapid growth in the market for two specialty products: fire-rated and photovoltaic glass.

Fire-rated glass is designed to prevent the spread of flames, smoke and heat, and new building and safety codes require its use in new construction and transport projects.

Photovoltaic glass, which is also referred to as solar glass, converts sunlight into electricity. This turns buildings into vertical power generators without adding to their carbon footprint. Government carbon reduction and renewable energy goals will ensure the rapid growth of this market. Europe alone is set to consume 3.1 million tonnes of solar glass per annum — or the combined annual output of 15 production plants.

One bright spot for the industry is the rapid growth in the market for fire-rated and photovoltaic glass.

Briefly summarizing the situation in Europe, Oaklins' Liège observed that inflation — especially the big jump in energy prices — and the construction downturn have led to some instability for the flat glass sector. But she added that the expectation is that the construction industry will soon recover and glass makers will be able to pass on their cost increases to their customers. In the meantime, promising new products with higher margins will help carry the sector through this difficult period.

THE US GLASS MARKET

Similarly, the US building products market — including the flat glass sector — is confronting a number of short-term obstacles, even as the medium- to long-term outlook remains robust.



VIDUR KAPUR
Associate Director
Oaklins TM Capital

Near-term, reported Vidur Kapur, associate director for Oaklins TM Capital, the US construction market is facing headwinds from a steady climb in interest rates. As of the end of October, Kapur said, the rate for a 30-year fixed mortgage had risen above 7%, making it more costly for many would-be buyers to purchase a house and prompting a shift from home buying to renting.

At the same time, prices for building materials, including glass, have risen significantly, and despite a recent easing, costs remain notably higher than 18 months ago. The cost of labor has also leapt upwards, and finding quality labor remains a challenge throughout the construction industry.

Longer-term, however, Kapur indicated that there are structural reasons to remain bullish about the building products sector. Chief among them is the widespread shortage of affordable housing in the USA, where single-family home starts have still not recovered to their pre-Great Recession peak, and current estimates put US housing supply approximately six million units short of demand.

Powerful demographic trends are also contributing to long-term housing demand. Younger Millennials and members of Generation Z, which includes individuals born between 1990 and 2020, will begin entering their prime home buying years over the next two decades, and these potential buyers are expressing strong interest in home ownership.

And there are promising developments on the commercial side of the market as well, where the growth of e-commerce, technology-intensive businesses and new medical facilities are leading owners to retrofit and repurpose their commercial properties. But Kapur noted that this effort to meet the new space requirements of the post-COVID economy is still in its very early stages, although it should help support the commercial construction market for years to come.

TAILWINDS FOR GLASS DEMAND

New construction, Kapur said, combined with a steady stream of remodeling activity will underpin strong flat glass demand. Contributing to this, he added, is the rebound just beginning to take place in market segments like office buildings and hospitality, two sectors that were heavily impacted by the pandemic and have only just started to recover.

Strong tailwinds behind the glass market also include new architectural trends that favor natural light and glass-intensive designs, along with environmentally friendly building practices and growing requirements for greater energy efficiencies — both of which will also propel demand for glass.

Architectural trends that favor natural light and sustainable building practices will also propel the demand for glass.

Globally, Kapur said, public glass companies are currently trading just north of 1.0x revenue and 6–7.0x EBITDA, and are experiencing strong top-line growth. Those glass makers with more specialized and value-add capabilities, as well as those with cost advantages stemming from the location of their production facilities, are benefiting from higher margins.

In terms of M&A activity, Kapur said, there has been a flurry of glass transactions during the past 12 months, in particular in the States, where two of the largest glass fabricators were purchased by private equity firms (Oldcastle BuildingEnvelope and Trulite).

“We see increased opportunity for investment, consolidation and automation,” Kapur observed. “Strategics and private equity seem to be recalibrating to focus their time and efforts on areas they find compelling given the macro environment. Once we get past the current uncertainties surrounding interest rates, input prices and labor availability, we think M&A will accelerate in the glass sector.”

WHAT MAKES A GOOD M&A TARGET?

Wrapping up the discussion, Ulrich Brahms, CEO of Caleoglas, put forward his view of what makes a glass maker an attractive candidate for acquisition. When evaluating potential targets, he said, “What really counts is that the company has to be profitable. We will look at the products, and hopefully they will have reasonable margins. Ideally, there will also be some product diversity and the company’s portfolio will be broader than a single flagship product.”

Similarly, he went on, Caleoglas will consider the target’s customer mix. “To minimize risk, the company shouldn’t be overly dependent on a single or small handful of very large customers.”



ULRICH BRAHMS
CEO
Caleoglas

“We take a close look at the structure of the management team. This is a key area, and we rather like a management team that consists of several strong managers, as opposed to one that is dependent on a single outstanding individual — no matter how qualified. For us to seriously consider acquiring a company, we think it’s important that it isn’t a one-man show.”

We would like to thank all the speakers and everybody who took part in our flat glass market webinar. As 2023 kicks off, this is clearly an industry facing both challenges and opportunities, and at Oaklins we look forward to sharing our knowledge and experience with glass processing & finishing companies around the world over the next 12 months and beyond.


Watch the webinar [here](#).




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to




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has sold



to



M&A SELL-SIDE

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have been acquired by



M&A SELL-SIDE

Construction & Engineering Services/Private Equity




has been acquired by




M&A SELL-SIDE


Construction & Engineering Services



has sold



to




M&A SELL-SIDE


Construction & Engineering Services

NCH Capital Inc.

has sold




to




M&A SELL-SIDE

Construction & Engineering Services/Private Equity



has sold



to



M&A SELL-SIDE

Construction & Engineering Services



has acquired


Xinyi Solar Holdings Limited

M&A BUY-SIDE

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to

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Glass processing & finishing is one of our focus areas. Combining comprehensive sector knowledge with global execution has led Oaklins to become one of the most experienced M&A advisors in the glass processing & finishing sector, with a large network of relevant market players worldwide. This results in the best possible merger, acquisition and divestment opportunities for glass processing & finishing companies.

If mergers, acquisitions or divestitures of businesses or business units are part of your strategy, we would welcome the opportunity to exchange ideas with you.



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Valērija leads Oaklins' glass processing & finishing team, and is a partner at Oaklins Baltics in Riga. As part of her sector focus, Valērija continuously follows developments, attends the major events and maintains regular contact with the key players in the industry. Among other transactions, she recently advised former owner NCH Capital and the management team on a management buy-out of Groglass, the world's leading producer of anti-reflective glass using proprietary vacuum coating technology.

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