

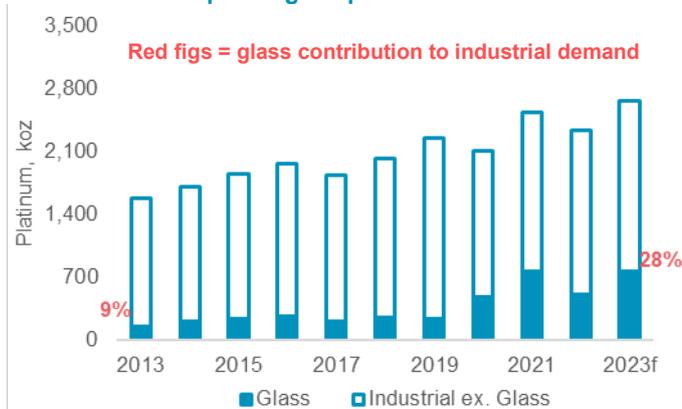
## China's demand for glass fibre to continues to grow, supporting ongoing platinum industrial demand growth

Strong growth in global glass and glass fibre demand has been a major factor behind platinum industrial demand growth of 5.4% CAGR over the last decade, double that of global GDP growth. Despite glass capacity growth being cyclical, our analysis suggests that ongoing growth in the renewable energy industry and automotive lightweighting will support sustained glass fibre demand growth and therefore industrial platinum demand growth.

Despite their cost, platinum/rhodium alloys are the only metals that can withstand the heat and corrosive effects of drawing and casting high quality glass fibres and sheets. Prior to 2020, ~12% of industrial platinum demand was from glass end-uses, but this has stepped up to between 22% and 30% of industrial platinum demand (lefthand chart). This is a substantial increase and given the on/off nature of capacity additions, we should question if this is just part of a natural cycle of additions, followed by consolidation, or if this is a sustainable pattern of demand growth.

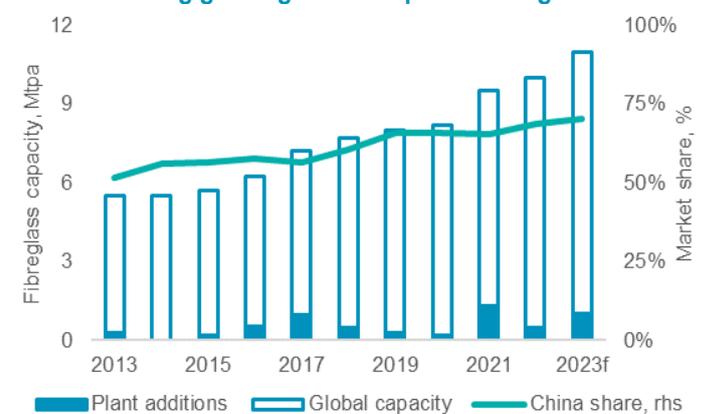
Global fibreglass capacity has increased by 6.9% CAGR since 2013, driven by China, who's global market share has increased from 50% to 70% (righthand chart). This growth has been driven by growth in downstream demand for glass fibre and high-quality screens for personal electronics. While we believe that glass demand from personal electronics might ease in the wake of the COVID induced boom, and the market for insulation in domestic construction is challenged, glass fibre demand is likely to continue to grow, particularly for renewable energy applications.

Glass drove a step change in platinum demand



Source: SFA (Oxford) 2013 to 2018, Metals Focus 2018 to 2023f, WPIC Research

China is driving global glass fibre production growth



Source: China Glass Fibre Industry Association, WPIC research

The case for continued growth in glass capacity is strong. China is the most significant producer of glass fibre globally (70% market share in 2023), and has a robust capacity expansion pipeline to 2025f. China's five largest fibreglass producers have a cumulative 2.2 Mtpa of capacity additions between 2023 and 2025 (equivalent to 20% of existing global capacity). Project announcements imply Chinese capacity growth of 32% to 2025, with 0.8 Mtpa slated for 2023 and the remaining 1.4 Mtpa expected in 2024 and 2025 (Fig. 4, overleaf). While capacity additions can be at risk of deferrals, production capacity is required for renewable energy markets. Specifically wind turbine capacity is expected to increase by 9.5% CAGR between 2022 and 2030 (Fig. 5). Fibreglass composites used in the manufacture of turbines are superior to traditional building materials.

Given government support for renewable power generation is likely to continue through any period of economic uncertainty, we believe this will promote continued growth in glass capacity additions, which should result in glass platinum demand remaining at around 500 koz p.a. through 2027f, 280 koz above pre-2020 levels (see fig 6).

**Industrial platinum demand growth of 5.4% CAGR has averaged twice as much as global GDP growth since 2013.**

**A locked-in medium term growth pipeline and the need to meet the growing wind turbine market suggests glass demand for platinum can be sustained.**

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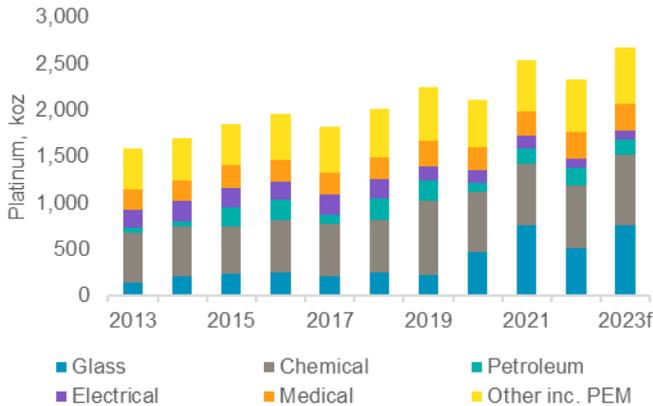
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**Platinum's attraction as an investment asset arises from:**

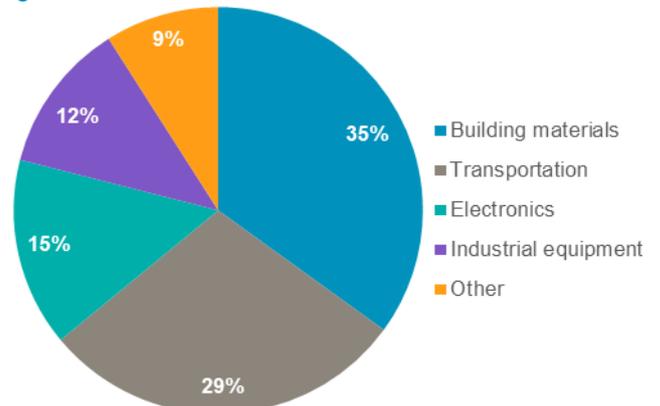
- WPIC research indicates the platinum market entering a period of consecutive deficits from 2023.
- Platinum can be considered a proxy for investing in the growing hydrogen economy given its use in electrolysers and fuel cells.
- Platinum supply remains challenged, hampered by electricity shortages in South Africa and sanctions against Russia
- Automotive platinum demand growth should continue due principally to substitution in gasoline vehicles.
- The platinum price remains historically undervalued and significantly below both gold and palladium.

**Figure 1: Glass platinum demand has been the fastest growing, but most volatile sub-segment of industrial platinum demand since 2013**



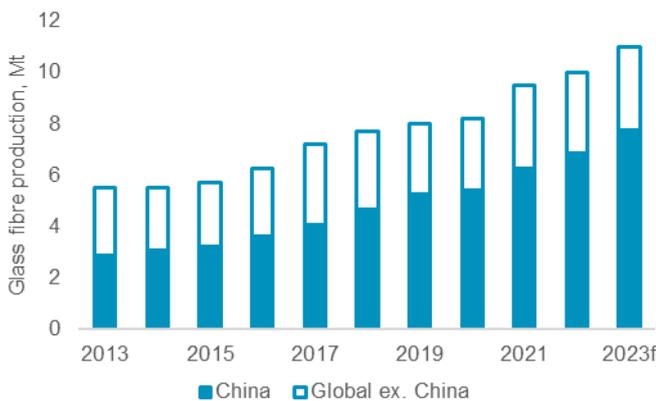
Source: SFA (Oxford) 2013 to 2018, Metals Focus 2018 to 2023f, WPIC Research

**Figure 2: Glass fibre is used in end-markets, with the infrastructure related requirements accounting for the largest constituent of demand**



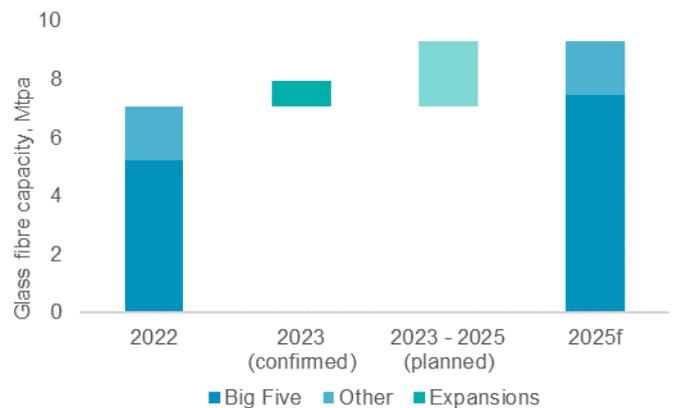
Source: China Jushi, WPIC Research

**Figure 3: China has driven the majority of global fibreglass capacity growth in the past decade**



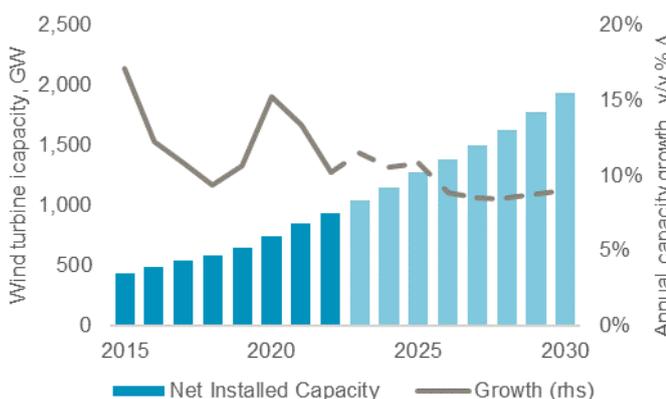
Source: China Glass Fibre Industry Association, WPIC research

**Figure 4: China's big-five glass producers plan to grow capacity by 32% over three years**



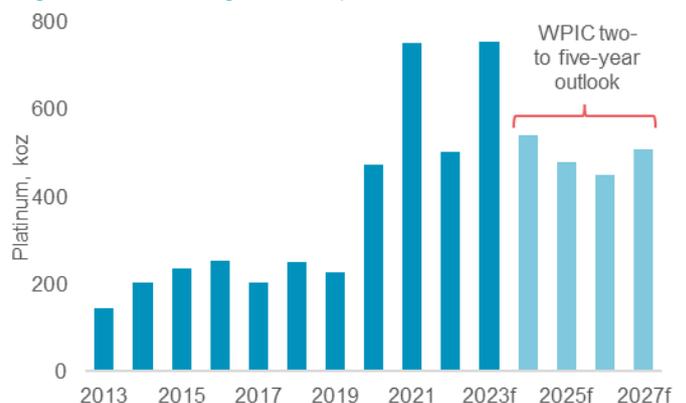
Source: Company data, WPIC research, \*Big five includes China Giant Stone, China National Building Group, Chongqing International, Shandong Fiberglass, Chang Hai Corp

**Figure 5: Decarbonising the grid is underpinning sustained renewable energy demand growth supporting wind turbine capacity**



Source: Bloomberg Intelligence, WPIC research

**Figure 6: Platinum glass demand should prove resilient through 2027f due to near-term capacity additions and long-term demand growth expectations**



Source: SFA (Oxford) 2013 to 2018, Metals Focus 2018 to 2023f, WPIC Research 2024 onwards

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