

# China Solar Power Equipment

## Our take on the potential limitation on the export of solar wafer technology

Last Friday, there were media reports saying that China will limit the export of certain solar wafer technologies in order to protect the competitive edge of China solar supply chain across the globe. We note that the news actually refers to the consultation paper already issued by Ministry of Commerce back in late Dec 2022. We think one of the key questions in the consultation paper is whether China's wafer capacity construction in overseas will be subject to Chinese government approval. While the result of the consultation is yet to release, our discussion with several solar companies suggested that overseas expansion may not be limited as long as the overseas' capacity is wholly owned by the Chinese companies.

- **Consultation paper regarding the prohibiting/limiting of the export of technology.** The paper was released in late Dec 2022 covering various industries (关于《中国禁止出口限制出口技术目录》修订公开征求意见的通知: [link](#)). The consultation period ended on 28 Jan and the final result is yet to release. There are two categories of the export of technology, namely (1) prohibiting; and (2) limiting. According to the Chinese regulation (中华人民共和国技术进出口管理条例: [link](#)), "prohibited" items on the list are not allowed to export. "Limited" items will be subject to government approval.
- **Three newly added items related to solar power industry.** In the consultation paper issued in Dec 2022, there are three newly added items in the "limited" category for the solar power industry, which include: (1) large size wafer, (2) black silicon, (3) high efficient mono-crystalline/multi-crystalline ingot production. Export of these technologies will need permission from the Chinese authorities, according to the consultation.
- **China solar wafer has a dominant position in the world.** According to CPIA, China's solar wafer output accounted for >95% of the world's total in 2021, higher than other major products in the supply chain (Figure 1). Such dominant position is a result of the continuous efficiency enhancement of crystal growing furnace, meticulous wafer slicing technology and economy of scale, which drive the cost down significant over the past decade.
- **Potential impact on wafer equipment makers.** It's currently unclear whether the export of crystal growing furnace and wafer slicing machine will be defined as "export of technology". **JSG (300316 CH, BUY)** is currently the largest crystal growing furnace maker in China. Given that JSG generates >90% of revenue in China (where most of the wafer capacities are located), the potential impact should be limited.
- **Potential impact on wafer makers.** **LONGi (601012 CH)** and **TCL Zhonghuan (002129 CH)**, the two major wafer makers, generates most of the wafer revenue in China. For the integrated solar plays such as **Trina (688599 CH)**, **JA Solar (002459 CH)** and **Jinko (688223 CH)**, the wafer output is mainly for in-house solar cell production. Given that these players are expanding factories in overseas, their expansion plan will become uncertain in case for a strict limitation of technology export in the final outcome.

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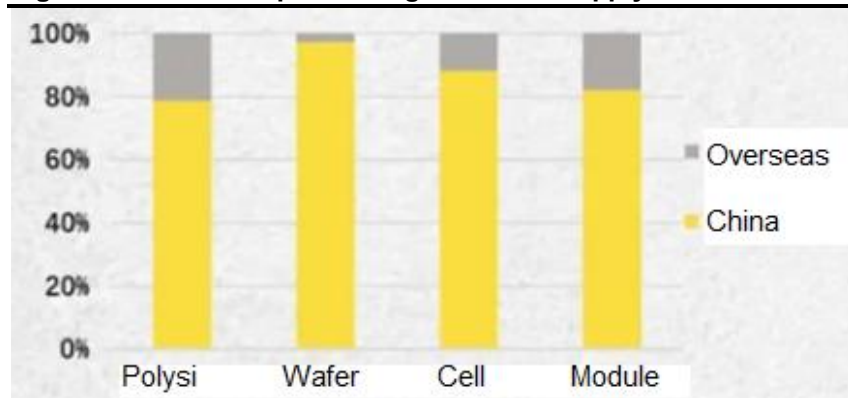
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3. China Solar Power Equipment (Outperform) - Picks and Shovels in the Solar Gold Rush – 11 Nov 2020 ([link](#))

**Figure 1: China's output in the global solar supply in 2021**

Source: CPIA, CMBIGM

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