

Localisation Opportunities in South Africa

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THE VOICE OF **SOLAR PV IN** SOUTH AFRICA

The South African Photovoltaic Industry Association (SAPVIA) is a non-profit industry association established in 2010 and officially registered in 2013: To promote, develop and grow the Photovoltaic (“PV”) industry as part of the wider renewable energy sector in South Africa.

OUR VISION



For solar PV to be a significant and reliable contributor to the South African electricity mix; by 2050, there is:

- **Energy Security**, solar PV is used as an infinite daily energy resource
- **Policy and Market Alignment**, where clear laws and policies complement one another, and public-private partnerships enable the growth of the solar market, and
- **Environmental & Market Sustainability** through decarbonised energy and creation of economic development opportunities

2023

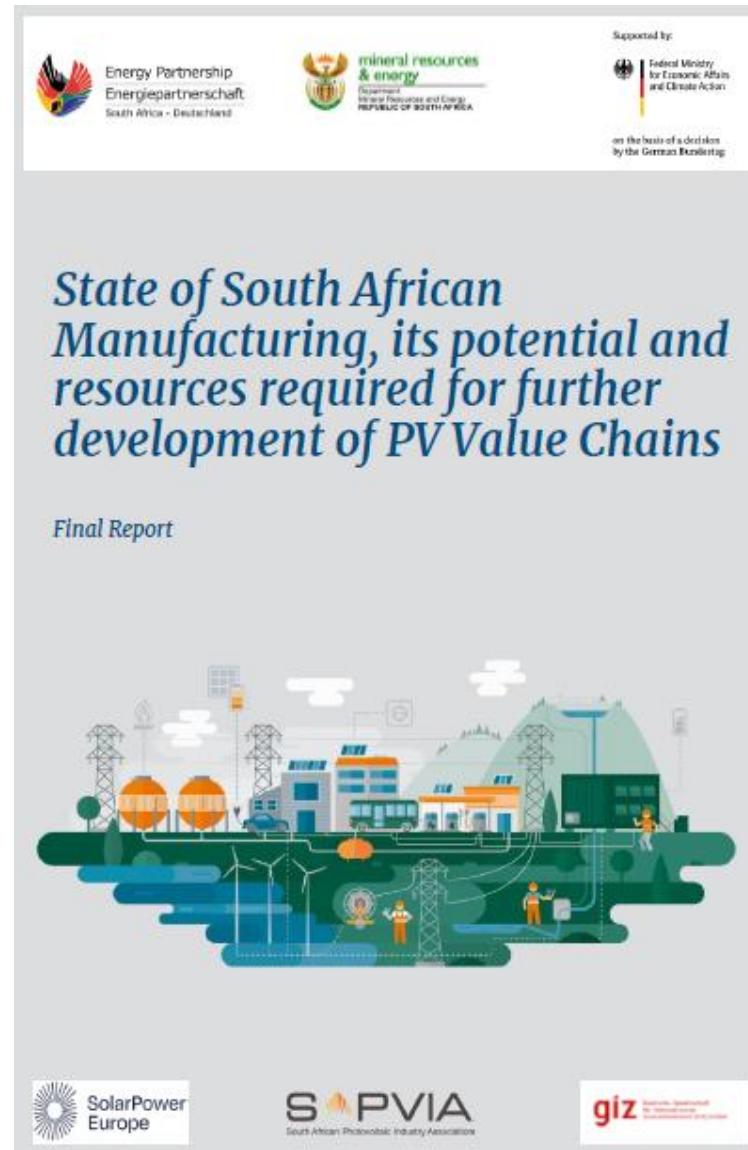
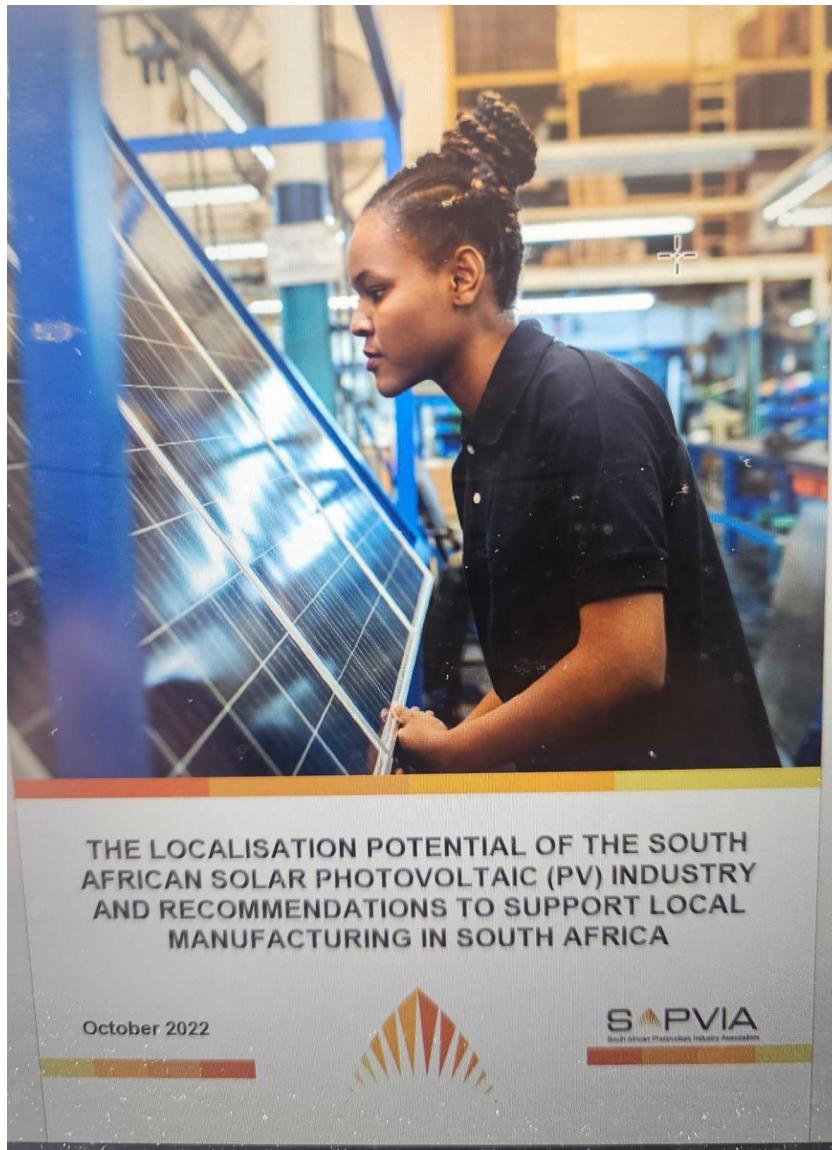


OUR STRATEGIC FOCUS AREAS



LOCALISATION EXPLAINED





Project Partners

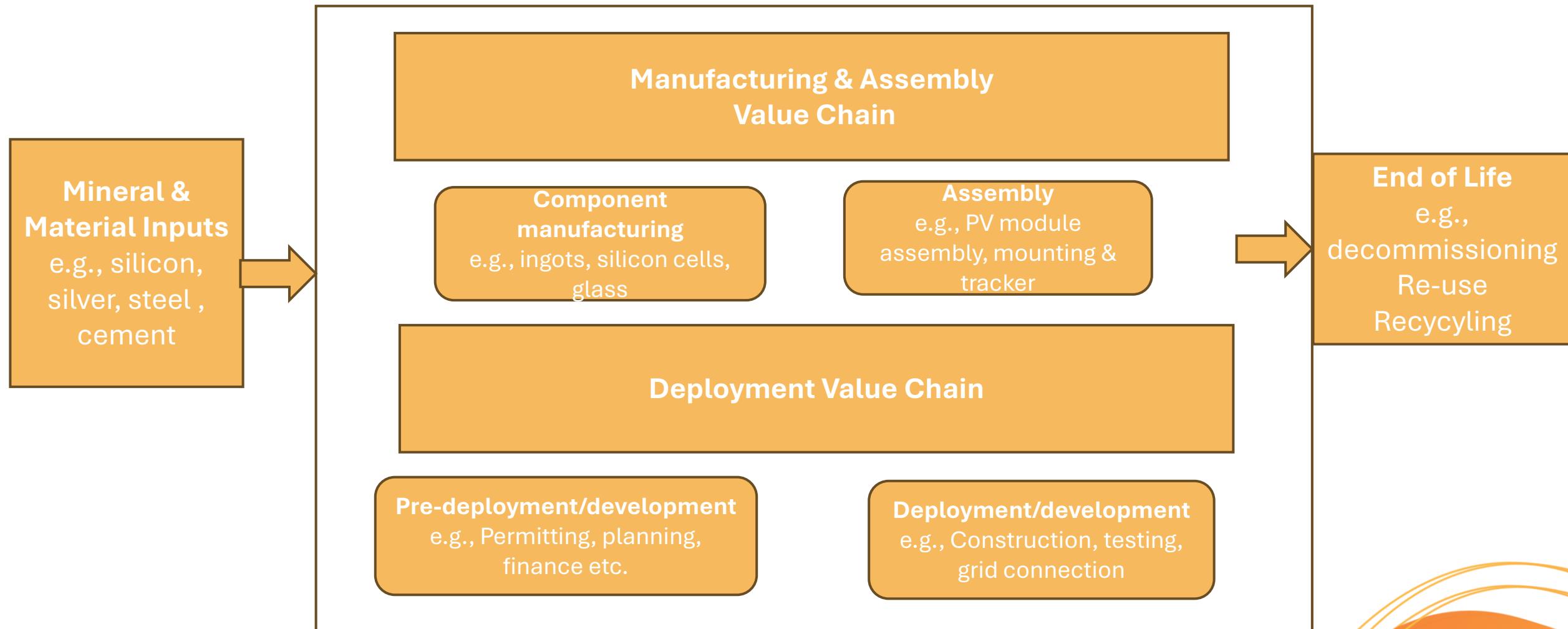
Energy Partnership
Energiepartnerschaft
South Africa - Deutschland

 **SolarPower
Europe**

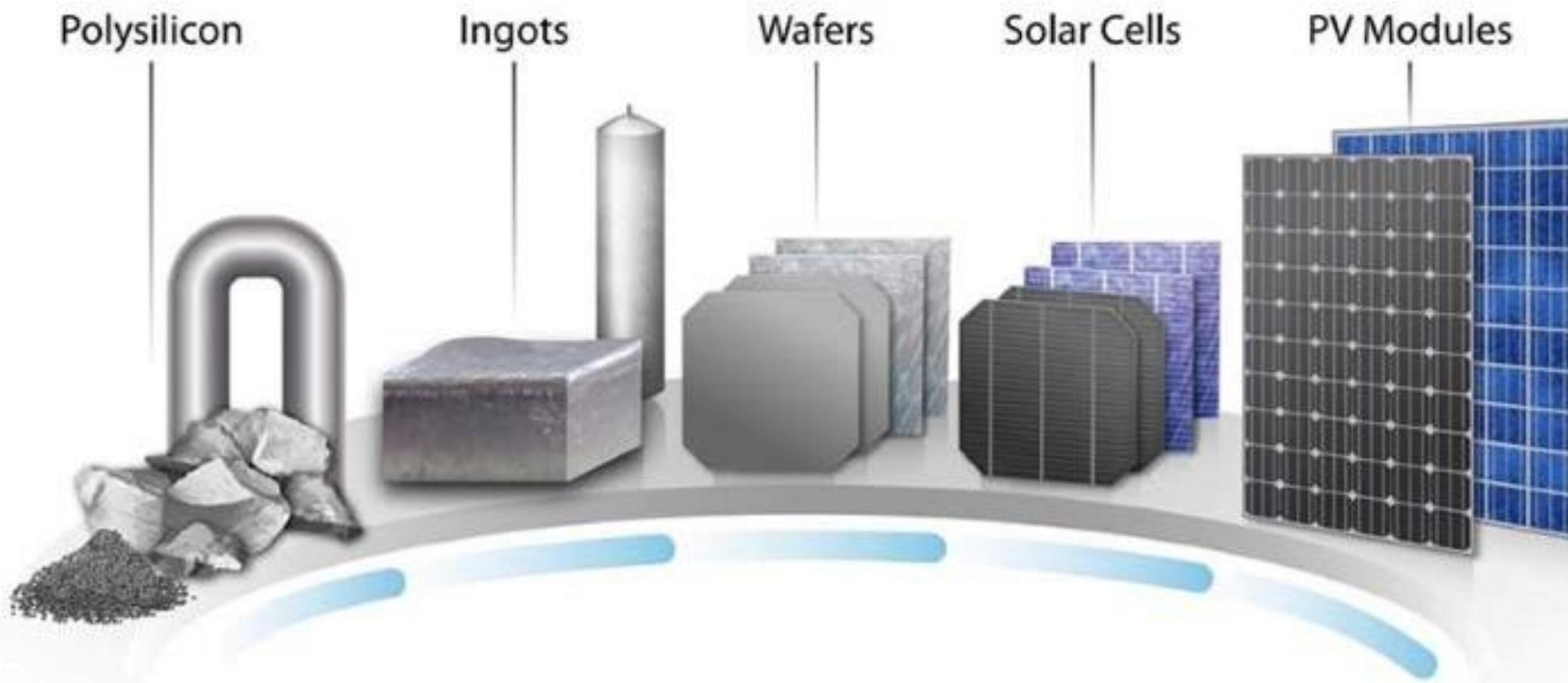
 **giz** Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

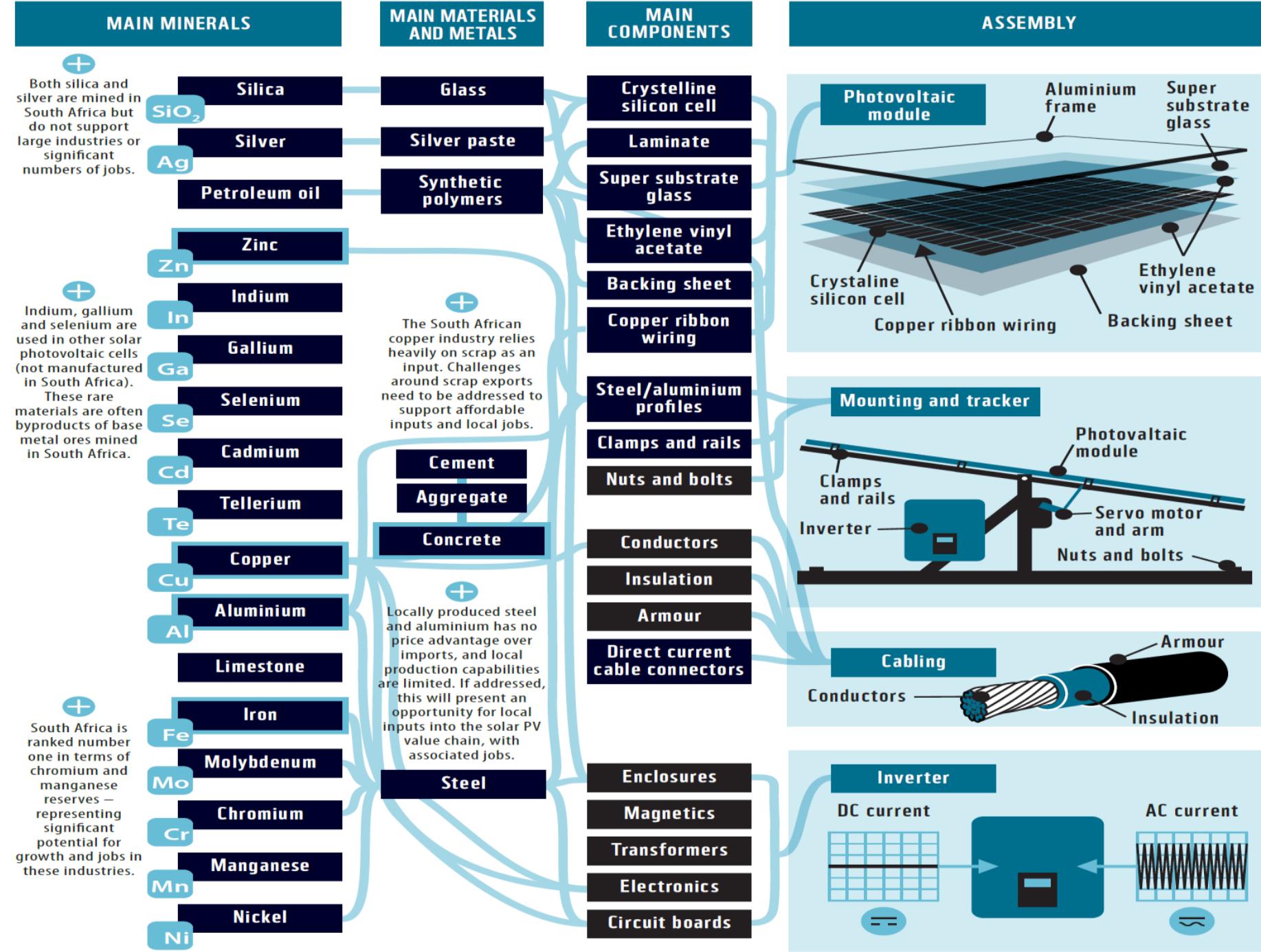


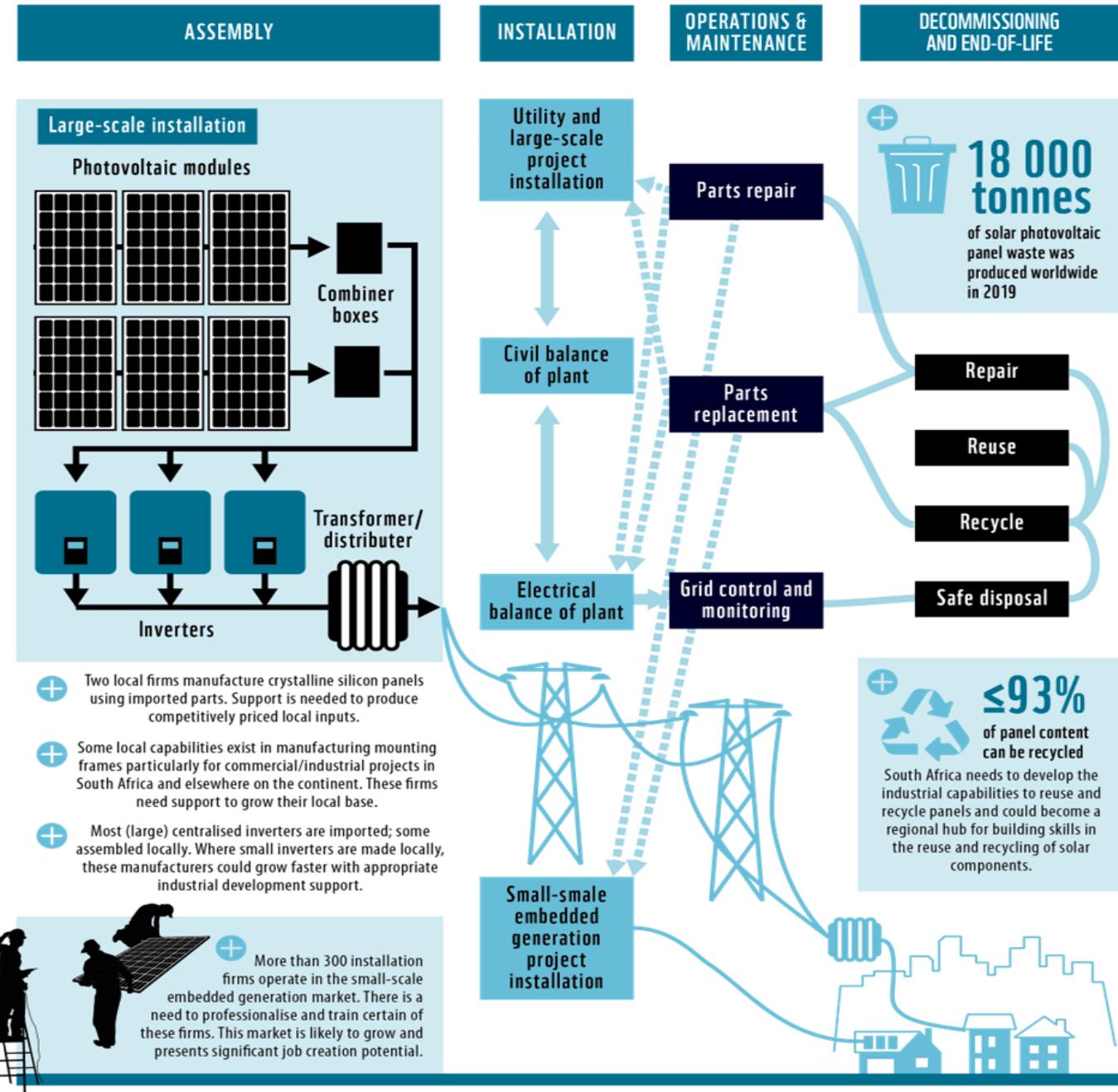
Solar PV Plant (System) Value Chain



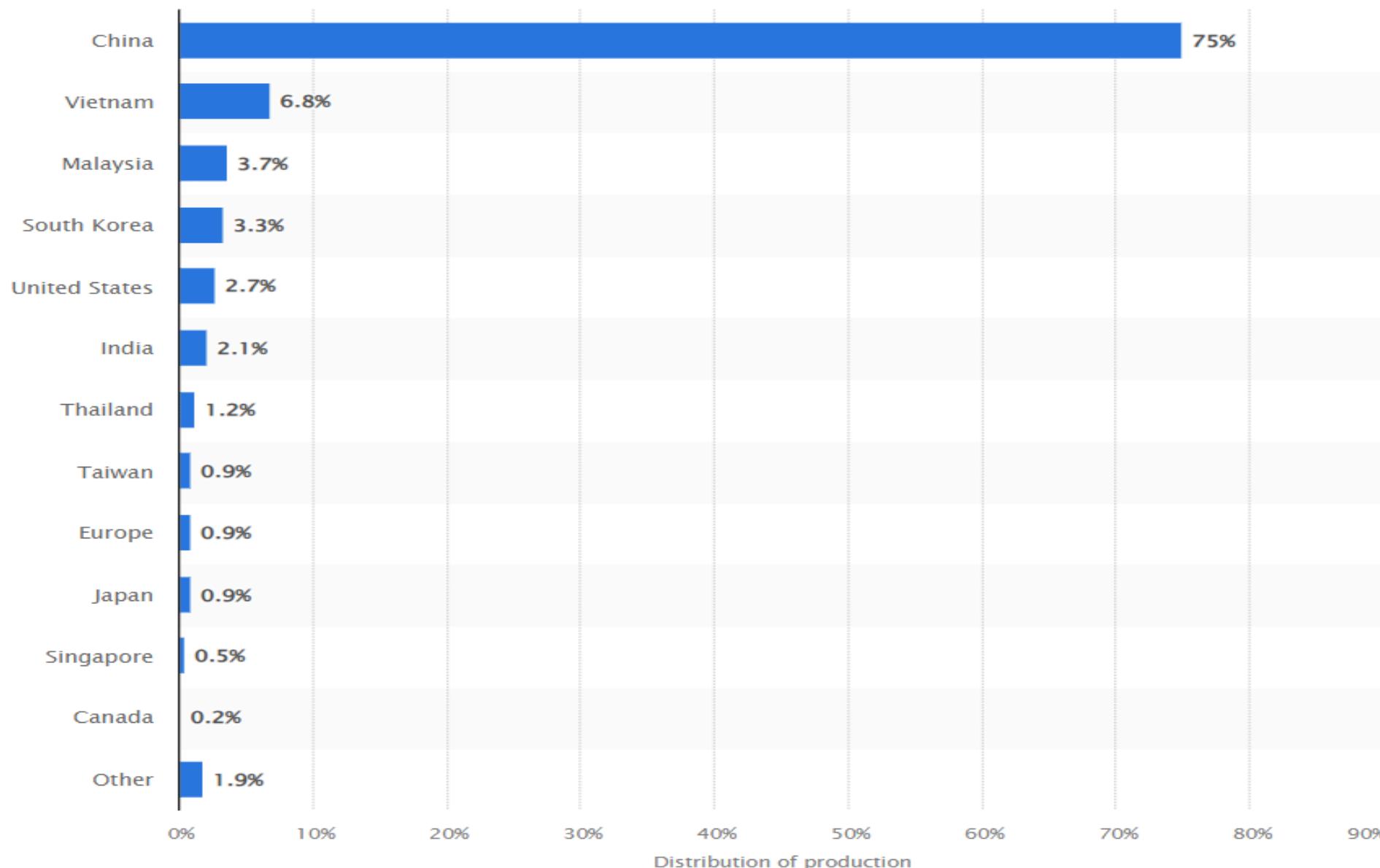
PV Module Manufacturing Value Chain



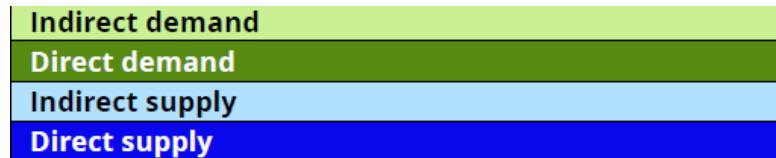
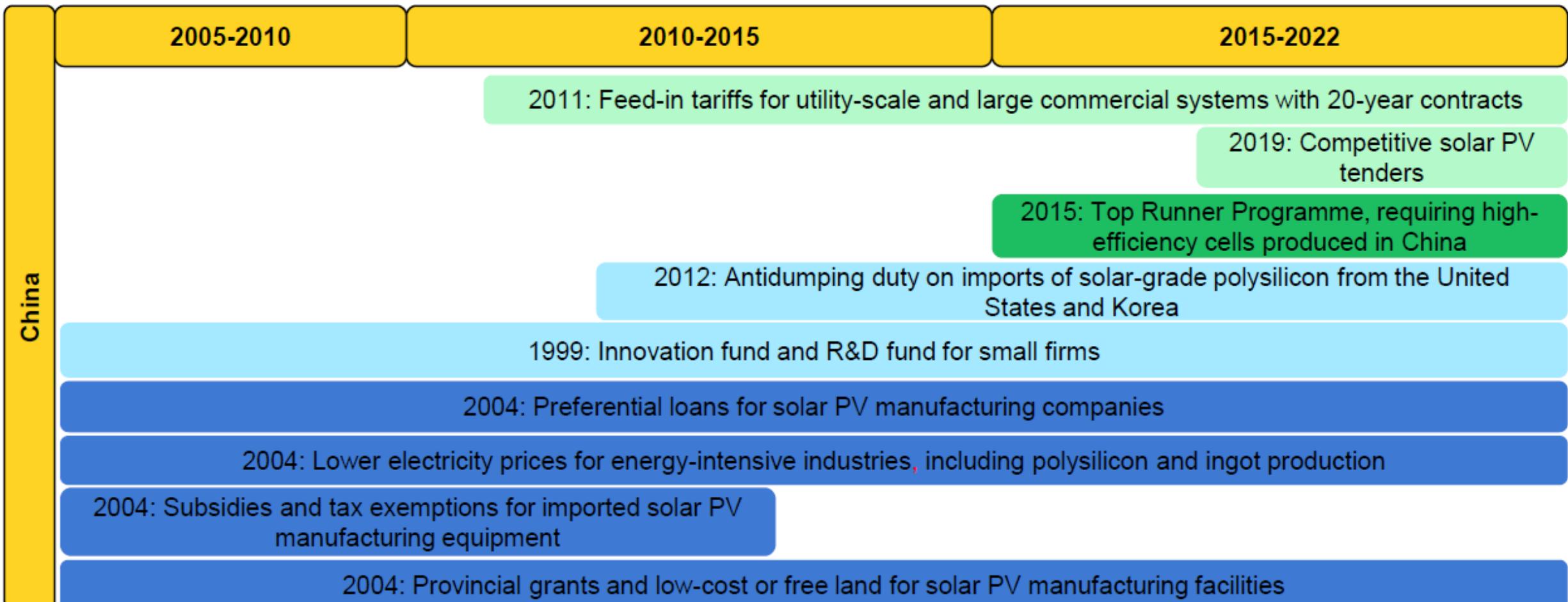




PV Module Manufacturing across the world



Examples of incentives for the Solar PV manufacturing industry: Chinese Case Study



Localisation Opportunities (Based on SAREM and SAPVIA Scenarios)

| Modules | Mounting Structures and Trackers | Cables and Combiner Boxes | Inverters | Balance of Plant: Electrical | Balance of Plant: Civil | End of Life Management | | |
|-------------------------|---|-------------------------------------|-----------------------------|--|--|---|--|--|
| Lamination | Steel profiles | AD/DC cables | Centralised inverters | DC and AC network (cables) | Installation, logistics, construction | Recycling of panels | | |
| Junction Box | Aluminium profiles | Conductors (copper, aluminium rods) | Magnetics | Surge protection devices | Access roads and gates | Reuse (panels, structures, inverters) | | |
| Aluminium Frames | Tracker communication boxes | Insulation (polymers) | Enclosures | Switchgear | Miscellaneous site civils (drainage, field prep) | Recycling of steel structures and electrical components | | |
| Super-Substrate (glass) | Brackets and clamps | Armour (steel) | Transformers | Charge controllers and monitoring systems (excl. semiconductors) | O&M buildings | | | |
| Copper wiring | | Combiner boxes | Circuit boards | Conduits and fittings | | | | |
| Backing Sheet | | DC cables connectors | Power stage and electronics | MV/HV transformer | | | | |
| Ethylene Vinyl Acetate | | Normal cables | String Inverters | Earthing grid | | | | |
| Silicon | | | | Control room | | | | |
| Poly/ monosilicon | Moderate support measures and capabilities development required | | | | | SAPVIA | | |
| Ingots and Wafers | Intermediate support measures and capability development required | | | | | South African Photovoltaic Industry Association | | |
| Cells | Intensive support measures and capability development required. | | | | | SAPVIA | | |

Missed investment opportunities for local manufacturing



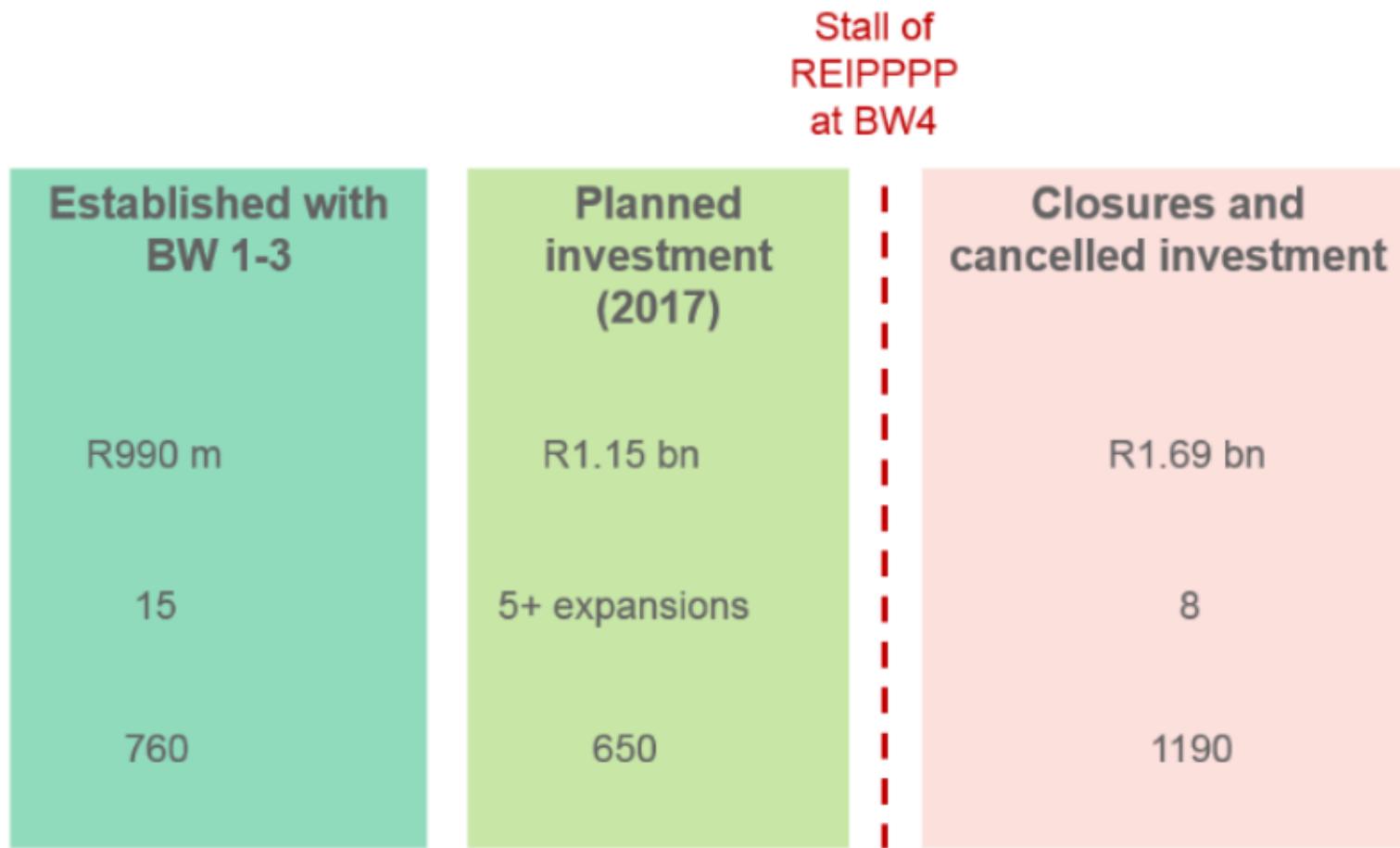
Investment in factories



Factories operational



Directly employed in manufacturing



Insights from second localisation study: summary

The study, building on a report released by SAPVIA in 2022 focuses on an updated analysis of South Africa's solar PV manufacturing value chain, aiming to inform public policies and private investments for strengthening local manufacturing and assembly.

This research further aligns with the European Union's renewable energy goals, to diversify and integrate the global solar supply chain while strengthening private sector collaboration between the EU and South Africa to bolster solar PV industrial development.

Key Takeaways and recommendations for South Africa: Policy coherence and certainty

- **Energy policy:** IRP regular and predictable updates
- **Trade policy:** Reconfigure policy instruments to support localisation
- **Fiscal policy:** Tax incentive, catalytic projects green projects, including SPV, Green SEZs
- Local content premium: tax incentive for rooftop solar
- Standards and testing capabilities

Key Takeaways and recommendations for the European Union

- Joint investment recruitment and mobilisation of concessional financing
- Ethical supply chains
- Technical assistance: skills and standards

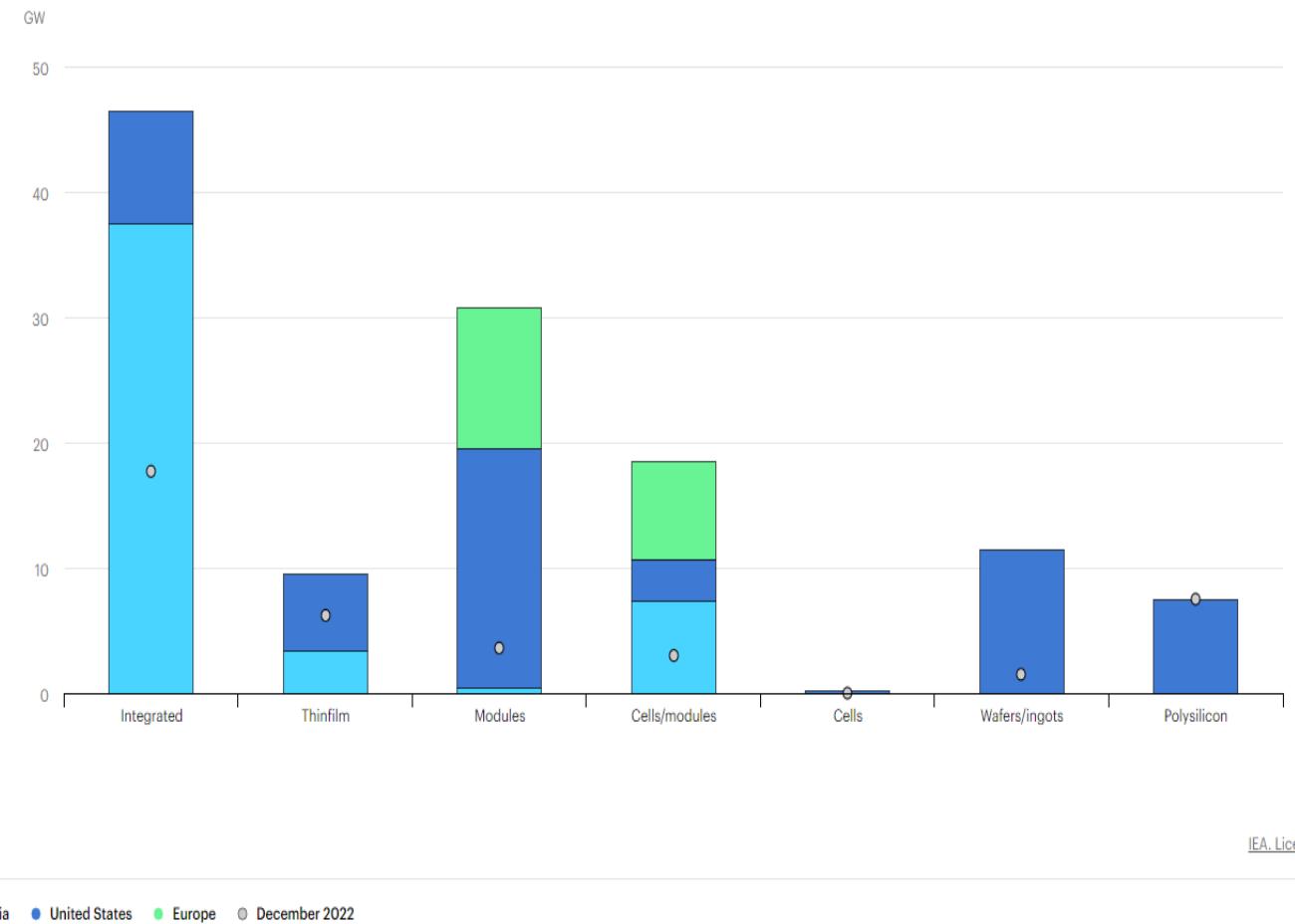
SAPVIA wishes to thank the project partners, Solar Power Europe and GIZ through the South African - German Energy Partnership, respectively, for their financial and holistic support throughout the development and dissemination of the study.



Insights from second localisation study: summary...continued

- China has built up overwhelming dominance in solar photovoltaic (SPV) value chains through demand and supply side policies: > 80% share in panel value chain
- Exponential reduction in SPV prices: from US\$5.00 per watt in 2005 to US\$0.38 in 2019
- US and EU seeks diversification from China through re-shoring and ‘friend-shoring’ energy (and digital) technologies
- Various industrial, trade and regulatory policies, e.g.
- Inflation Reduction Act
- Green Deal Industrial Plan
- Various developing countries seeking to establish capabilities in solar PV
- India and Türkiye: targeting integrated panel and module production
- Many countries assemble modules: Vietnam, Malaysia, Thailand ... South Africa
- Solar PV panel and module value chain have captured the primary attention of policy makers, including in South Africa.

Announced solar PV manufacturing capacity by region and component, 2022-2023



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