



South African Photovoltaic Industry Association

THE VOICE OF SOLAR PV IN SOUTH AFRICA

Overview of the Solar PV Industry in South Africa

Overview of REIPPPP, Private Utility Scale Projects, and Regulatory Developments

Presenter: Dr Rethabile Melamu

Designation: CEO

Date: 13 November 2024

Contents

- **Introduction to SAPVIA**
 - SAPVIA Overview
 - Membership Base and Industry Representation
- **Solar PV Projects Procured via REIPPPP**
 - Summary of Bid Windows and Project Stages
 - Capacity by Development Stage: Operation, Construction, Financial Close, and Award Stage
- **Private Utility Solar Projects**
 - South African Private Generation
 - NERSA-Registered Utility Projects for Private Use (Mining)
- **Commercial & Industrial (C&I) and Small-Scale Embedded Generation (SSEG) Projects**
- **Residential Solar Market**
 - Market Challenges and Opportunities
 - Regulatory and Compliance Issues
- **Key considerations for sector support**
- **Conclusion and Recommendations**

About Us

WHO WE ARE

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 decarbonized energy and creation of economic development opportunities

OUR MISSION

As the voice of the solar PV industry in South Africa, our mission is to support and represent our members. We:

- Shape and influence regulations and policy development
- Inform and educate members and other stakeholders
- Facilitate partnerships and collaboration
- Promote higher usage of solar PV in the public & private sector

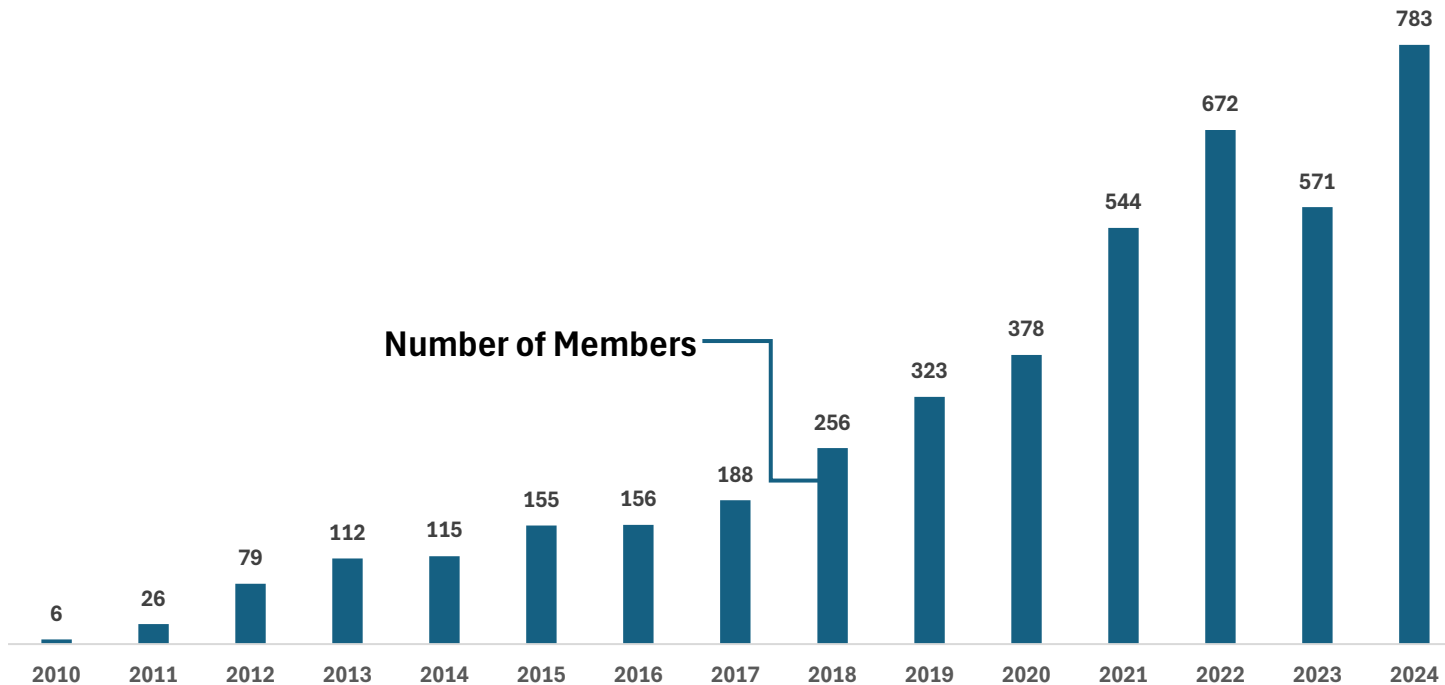
Through our support, our members:

- Deploy and invest in quality solar PV
- Facilitate greater accessibility and affordability of solar PV
- Create jobs, economic opportunities and develop skills

Membership Overview

Current membership landscape

Overall Membership Growth Trend



Key Insights

- **Steady Growth with Periods of Acceleration:** SAPVIA's membership shows consistent growth, with notable accelerations in certain years.
- **Exponential Growth in Recent Years:** The Association has experienced exponential growth in the last decade.

Our Members

PLATINUM SPONSORS



GOLD SPONSORS



Our Members

PREMIUM MEMBERS



Our Members

CORPORATE MEMBERS



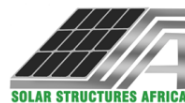
Our Members

ASSOCIATE MEMBERS



Our Members

ASSOCIATE MEMBERS



Our Members

ASSOCIATE MEMBERS



Solar Power



Overview of REIPPPP and Bidding Rounds

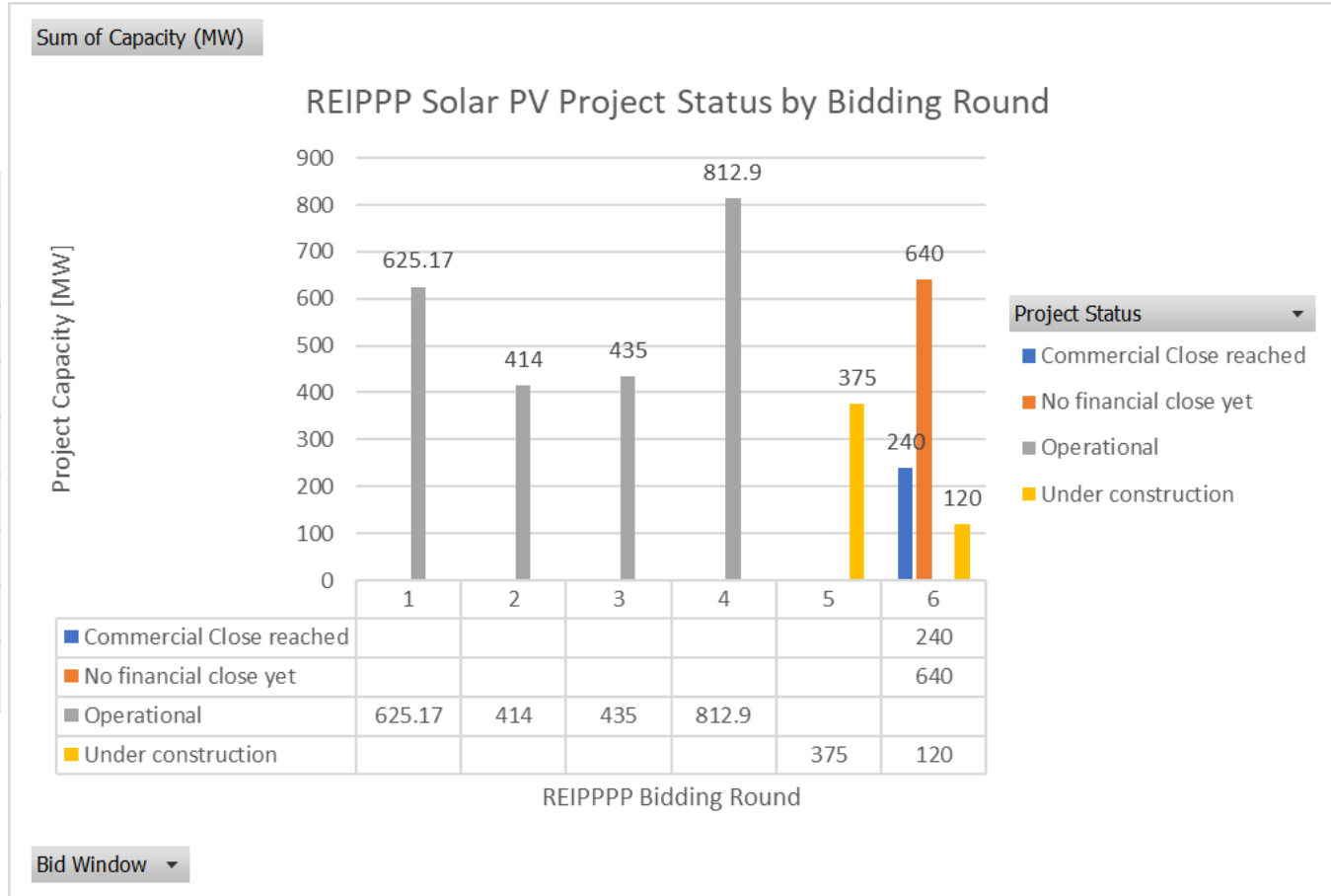
Goal of REIPPPP: Accelerate energy transition by procuring renewable energy through competitive bidding

Total Solar PV Capacity: 3662 MW, procured across various bidding rounds (Excludes RMIPPPP projects)

Solar PV Projects by Development Stage

REIPPPP Bidding Round	Commercial Close reached	No financial close yet (Preferred Bidder Awarded)	Operational	Under construction	Total
1			625		625
2			414		414
3			435		435
4			813		813
5				375	375
6	240	640		120	1000
Total	240	640	2287	495	3662

This table shows the progression of projects across development stages.



*Excludes RMIPPPP project procurement. Example SCATEC Kenhart - 540MW Solar PV total capacity, 120MW dispatchable.

Overview of The South African Private Market

NERSA Registered Capacity in South Africa

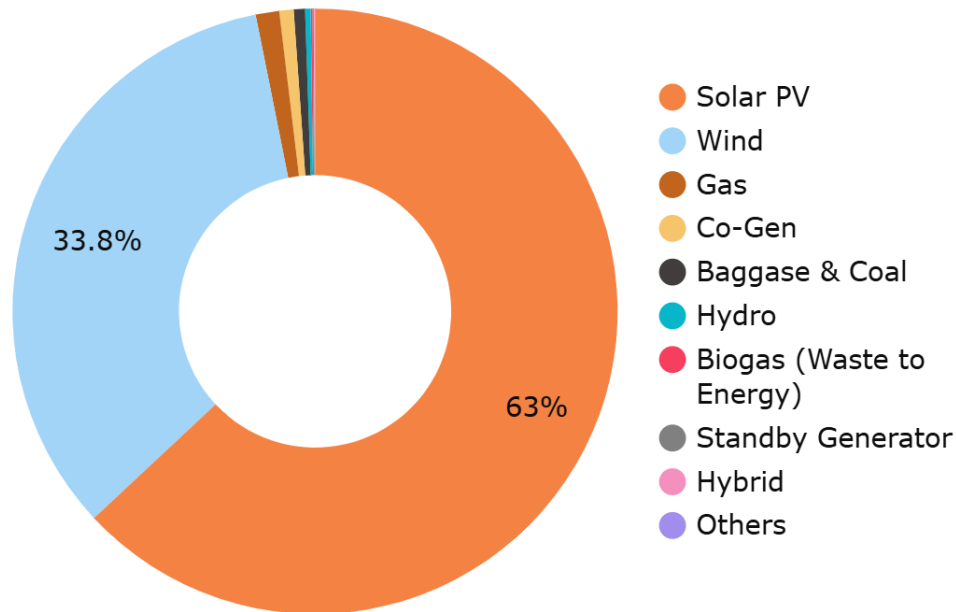


South African Photovoltaic Industry Association

Technology breakdown of registered generation facilities

Capacity (MW)

9,662



Source: <https://www.neresa.org.za/electricity-overview/electricity-registration/>

Minimum Size of Projects Registered: 100 kWp

- Solar PV: 63% (6090 MW)
- Wind: 33.8% (3267 MW)

2023 Registrations: 4529 MW

2024 Registrations: 3235 MW (Year to date)

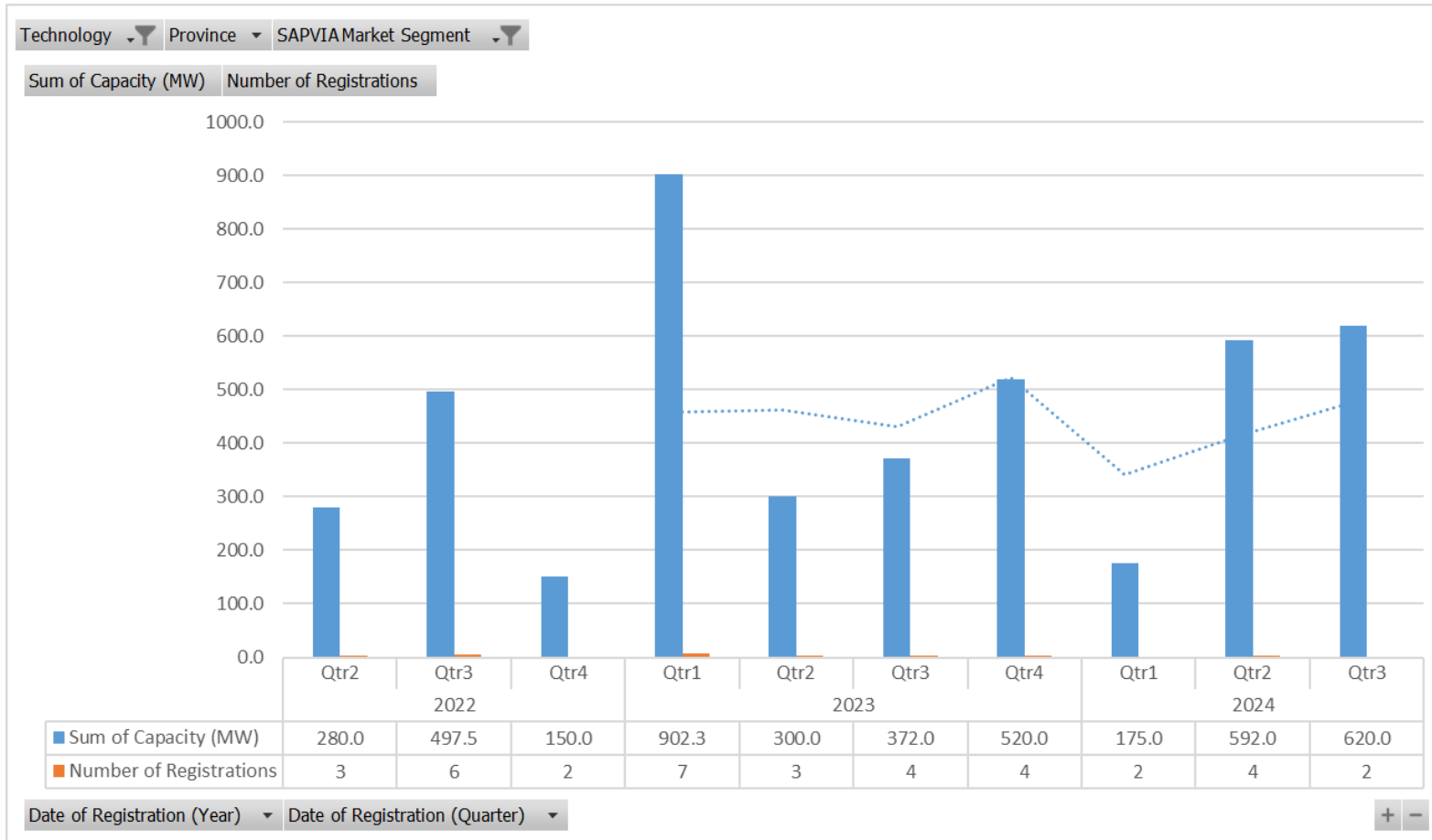
Private Investment in Generation Capacity Driven By:

- Security of Supply Concerns
 - Energy Cost Certainty
 - Supply Chain Decarbonisation/Global competitiveness
 - Wheeling Agreements
 - Aggregators and Traders
-
- SA PV (and wind) market was initially dominated by public utility-scale procurement through the REI4P
 - Demand has swung from reliance on REI4P utility scale projects towards private projects
 - Large scale commercial and industrial (C&I), Smaller scale embedded generation (SSEG) and Residential
 - REI4P projects likely to remain major part of SA demand but private projects will be of a similar magnitude
 - 4461MW of Solar PV Capacity likely designed for wheeling. 44% of the Total registered capacity and 73% of the Total Solar PV registered capacity.

Private Utility

(mining from our packaged NERSA data)

NERSA Registered Utility Scale Solar PV Projects (>50MW)



*Dashed blue line indicates quarterly rolling average of installed capacity

NERSA REGISTRATIONS DATABASE:

- Regulatory requirement: ERA
- Financial close requirement

37 PROJECTS REGISTERED

- Total Capacity: 4409 MW
- Free State: 1072 MW
- Northern Cape: 1020 MW
- Northwest: 975 MW

ENABLING ENVIRONMENT

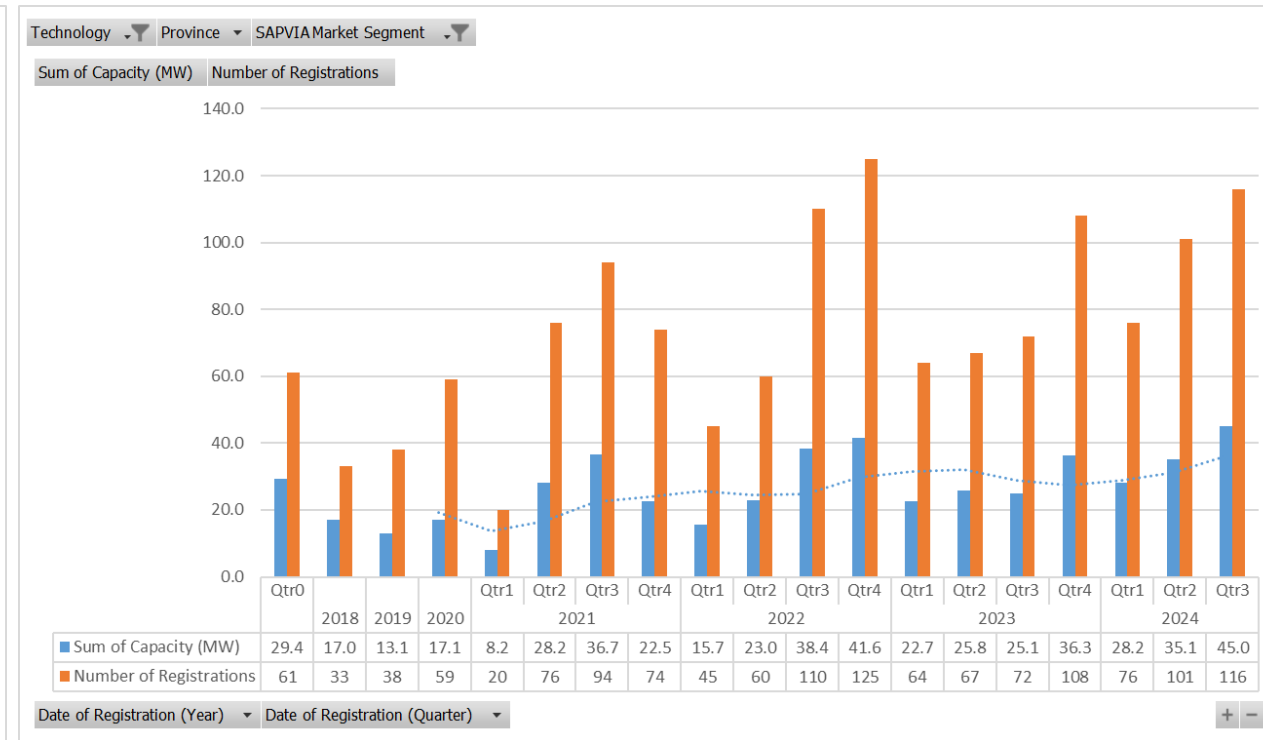
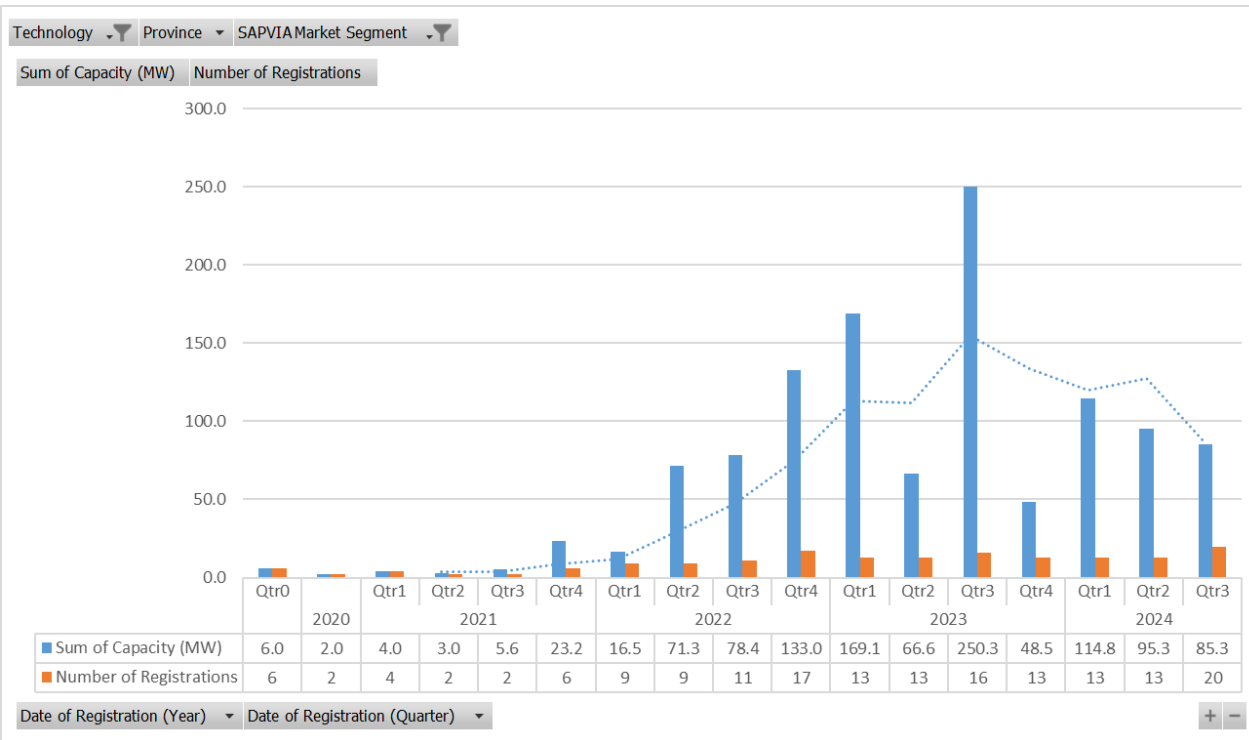
- ERA Schedule 2 amendment, 2021. Lifting of licencing requirements from 1MW to 100MW and removal in DEC 2022

C&I Solar Projects Registered With NERSA

- **NERSA C&I Large Scale (1-50 MW)** capacity shows robust growth.
- **NERSA SSEG (sub-1MW)** also contributes, with recent trends indicating a consistent rise as per the rolling average.

NERSA Registered C&I large Scale Solar PV Projects (1-50MW):

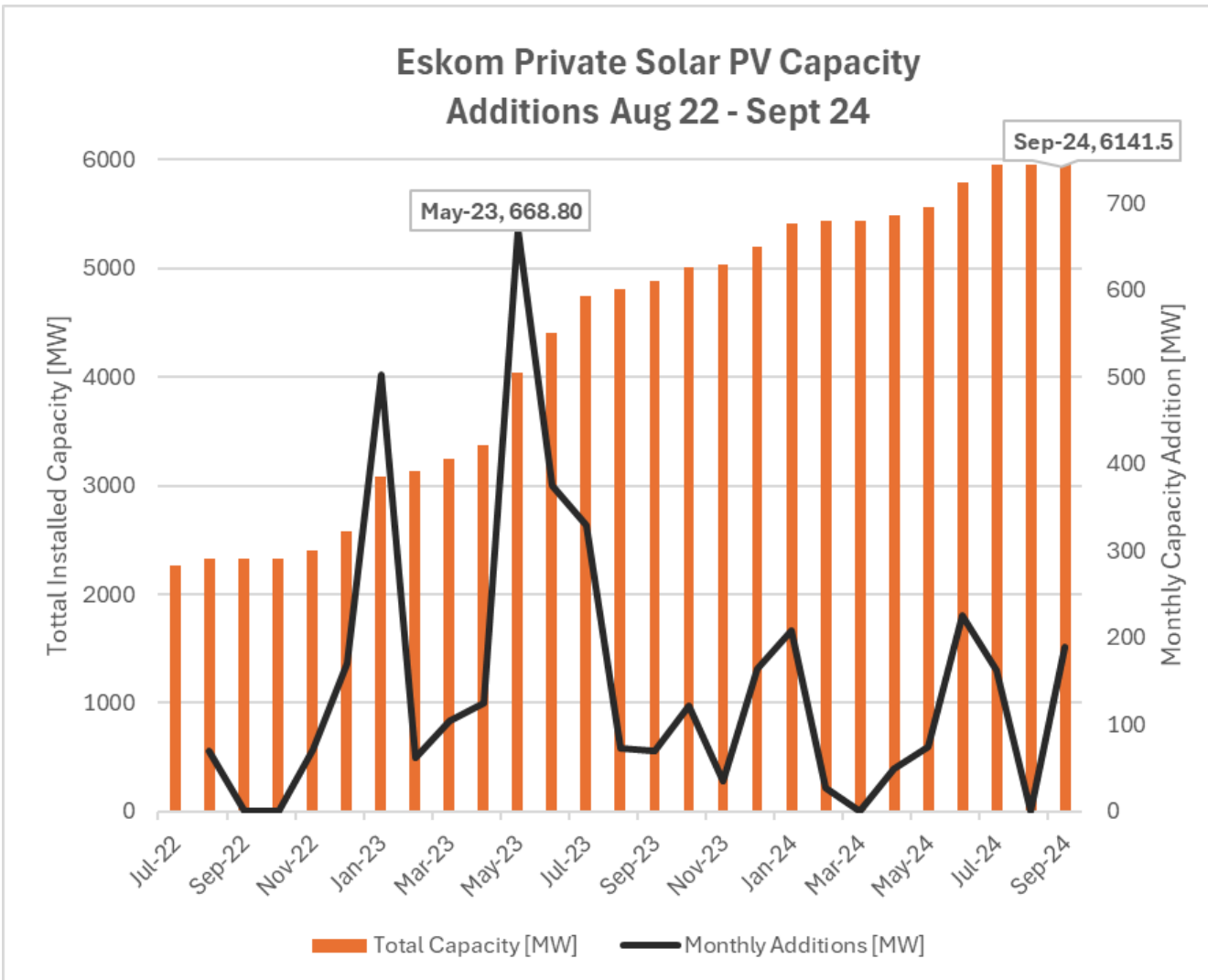
NERSA Registered SSEG Solar PV Projects (<1MW):



*Dashed blue line indicates quarterly rolling average of installed capacity

*Dashed blue line indicates quarterly rolling average of installed capacity

Private Solar Capacity Additions



Source: Eskom/NTSCA Weekly System Status Reports

ESKOM/NTCSA METHODOLOGY:

- System Operator load forecasting teams compare residual load on sunny and cloudy days
- Data publicly available on weekly system status reports
- Captures **ALL** private sector capacity additions. Residential, C&I and Utility scale.
- **2023 Total capacity added: 2629 MW**
- **2024 Total capacity added: 937 MW (Year to date)**
- **2023 Average Monthly capacity added: 220 MW**
- **2024 Average Monthly capacity added: 104 MW**

TOTAL OPERATIONAL SOLAR PV CAPACITY

- REI4P: 2287 MW (Round 5 – 375 MW 2025 COD)
- RMIPPPP: 540 MW
- PRIVATE: 6142 MW
- **TOTAL: 8969 MW**

Residential Market

Observations and challenges include:

- **Market Slowdown:** A 60-80% reduction in project volumes from 2023 to 2024, attributed to reduced demand following the suspension of load-shedding in March 2024.
- **Low Compliance and Registration Rates:** Many systems connected to distribution networks remain unregistered, with non-compliance prevalent in the residential market.
- **Inconsistent installation quality:** Large variation in system installation quality and electrical safety across installation industry and municipalities.

Key Interventions:

- **Solar Investment Incentives:** Offer tax benefits and grants for installations. Specifically targeting middle income households.
- **National SSEG Framework:** To standardize system registration and compliance across municipalities, a national registration portal could help streamline the process.
- **National Solar PV Registration online portal and database:** To streamline and enable registration of all Solar PV systems, especially in municipalities lacking capacity to develop internal systems. Successful implementation in India.
- **National Installation Standard (SANS 10142-1 Update):** SABS aiming for an updated version by the end of 2024, which would clarify the requirements for grid connected solar PV and BESS systems and improve compliance.

Supply Side Intervention:

- **Compulsory Specifications:** Currently no compulsory specifications for Solar PV and BESS.
- NRCS to be approached to adopt compulsory specifications for Solar PV equipment and BESS.

Recommendations on support mechanisms to increase rate of deployment of Utility Scale Solar PV capacity

1. Strengthen NERSA and Eskom Grid Access Unit

Capacity: Increase resources for faster licensing and compliance enforcement.

2. Codification of grid access and grid connection queuing rules:

Reduce industry uncertainty regarding regulatory requirement for new generation facilities.

3. Transmission infrastructure development:

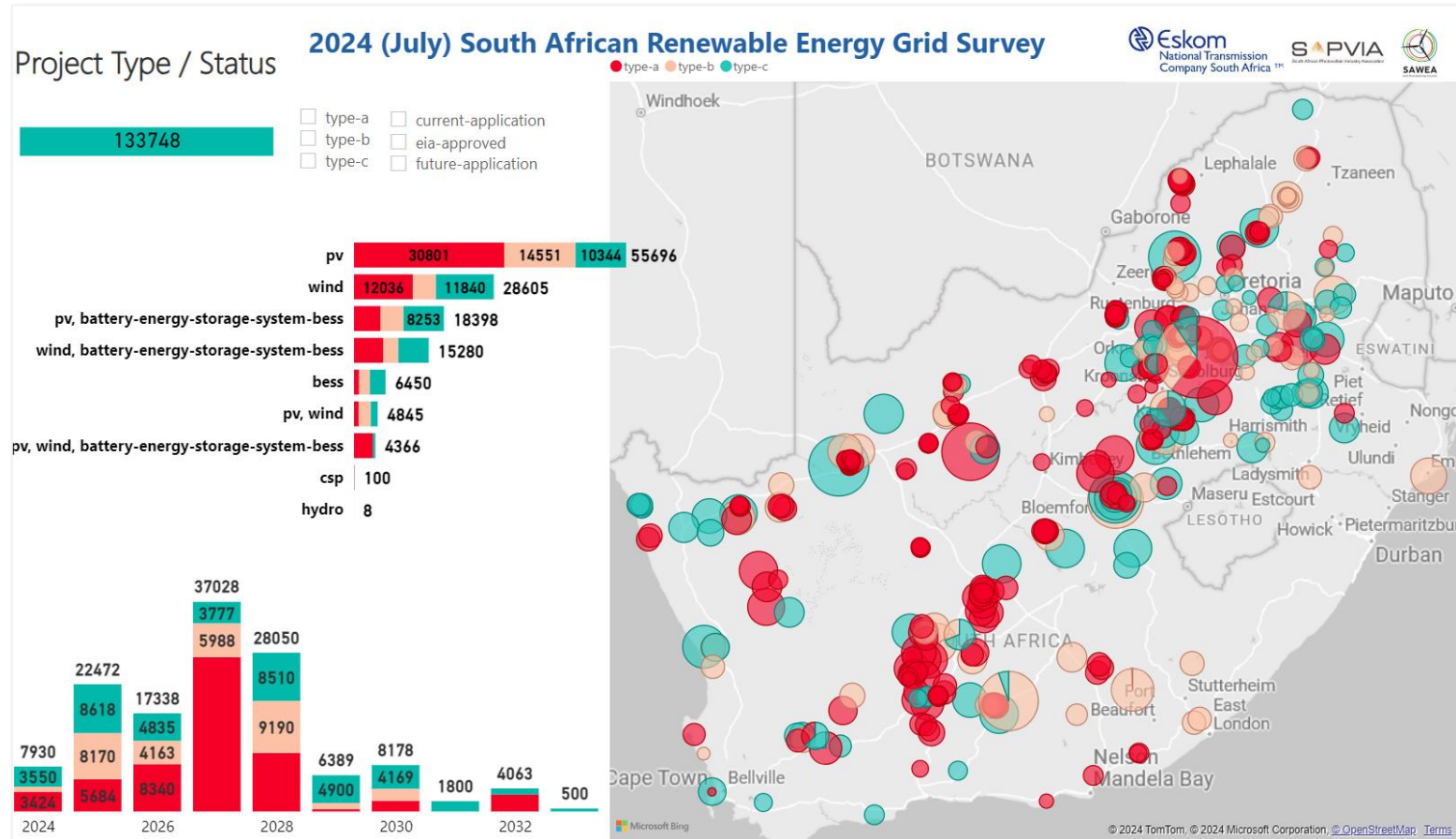
To increase the available grid connection capacity in high solar potential areas (NC, FS, NW)

4. Flexibility of connection agreement amendments:

Enable future expansion of BESS and hybrid technologies at same utility connection point.

5. Promote uptake of grid enhancing and monitoring technology:

increase available grid capacity through active network and generation management like curtailment.



State of SA Manufacturing

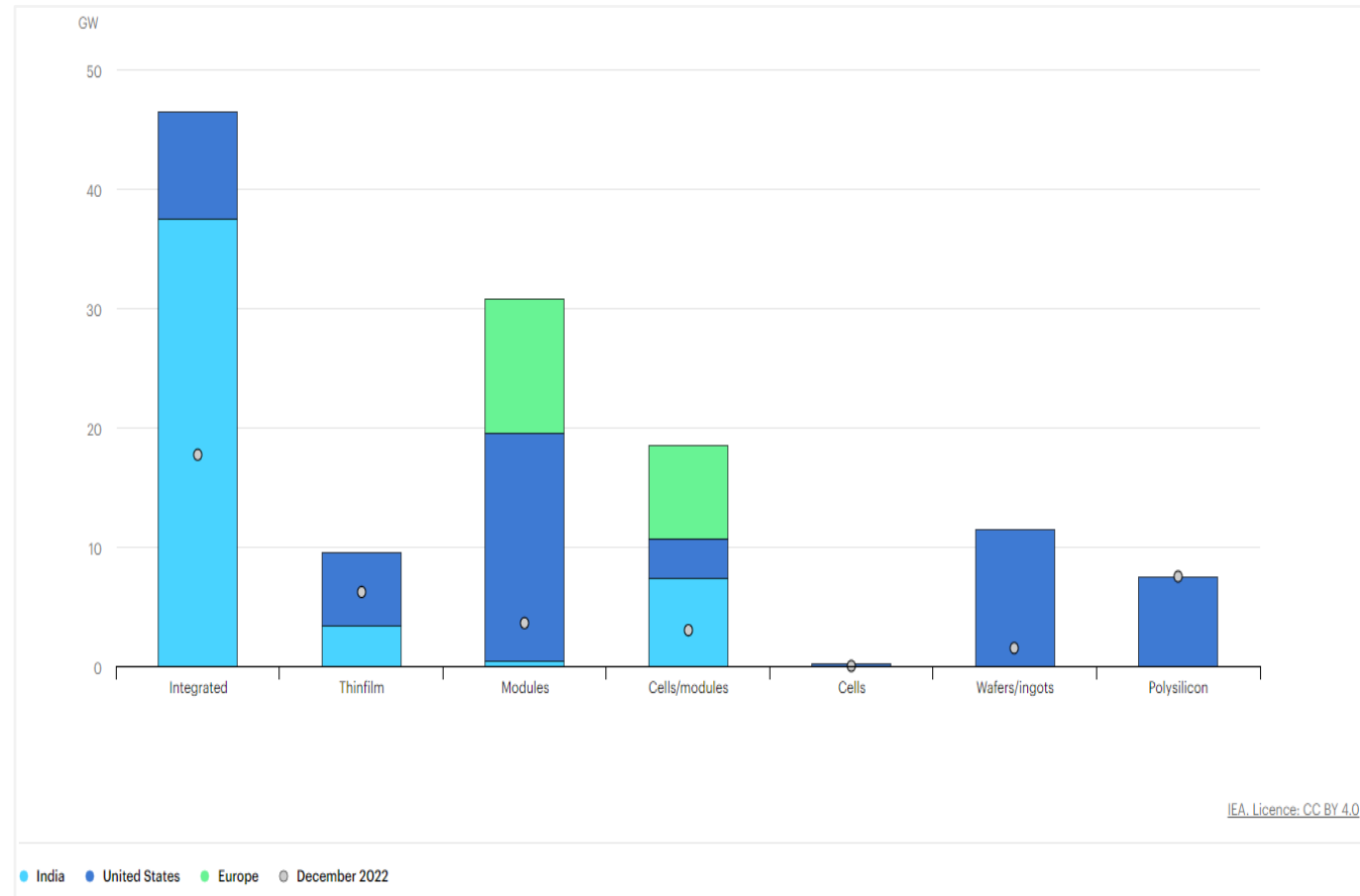


Insights from State of Manufacturing

Report

- 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 PV prices: from US\$5.00 per watt in 2005 to US\$0.38 in 2019
- 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



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	1. 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. semi-conductors)	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						
Ingots and Wafers						
Cells						

KEY TO COLOURS

Moderate support measures and capabilities development required

Intermediate support measures and capability development required

Intensive support measures and capability development required.

Module Import Duty and Rebate

- In July 2024, a 10% import duty and rebate was introduced in response to an application received with a report of finding released in 2021.
- SAPVIA has had several positive engagements with ITAC since the introduction of the rebate including online meetings and information sharing sessions.
- ITAC has committed to issuing import permits until the end of January 2025.



The screenshot shows the ITAC (International Trade Administration Commission of South Africa) website. The header includes the ITAC logo and a search bar. Below the header is a large image of a port at sunset. The main content area displays a breadcrumb trail: "You are here: Home > News Headlines > Media Releases". Below this is a news release title: "Increase in customs duty on crystalline silicon photovoltaic modules or panels, classifiable under tariff subheading 8541.40.10 (new 8541.43) be increased from free of duty to 10% ad valorem, by way of creating an 8 digit tariff subheading". To the left of the main text is a sidebar with the heading "In This Section" and three links: "ITAC IN THE MEDIA", "ITAC LATEST NEWS", and "MEDIA RELEASES".

ITAC
International Trade Administration Commission of South Africa

Search 

You are here: Home > News Headlines > Media Releases

> Increase in customs duty on crystalline silicon photovoltaic modules or panels, classifiable under tariff subheading 8541.40.10 (new 8541.43) be increased from free of duty to 10% ad valorem, by way of creating an 8 digit tariff subheading

In This Section

- ITAC IN THE MEDIA
- ITAC LATEST NEWS
- MEDIA RELEASES

Increase in customs duty on crystalline silicon photovoltaic modules or panels, classifiable under tariff subheading 8541.40.10 (new 8541.43) be increased from free of duty to 10% ad valorem, by way of creating an 8 digit tariff subheading

Conclusion and Recommendations

Key Takeaways:

- Solar PV has significant potential to solve South Africa's energy trilemma, provided regulatory and policy barriers are addressed.
- A national, streamlined framework and standardized compliance for SSEG and BESS are critical.
- Government and Parliamentary support for these reforms is essential to drive South Africa's renewable energy future.

SAPVIA's contributions:

- Engage with stakeholders on standardized processes
- Continue to advocate for robust NERSA and Grid Access Unit capacities.
- Monitor upcoming SANS standards release and drive NRCS applications for Solar PV and BESS equipment.
- Support informed local component manufacturing

Final Call to Action:

Let us work together to create a robust, sustainable Solar PV ecosystem that secures our energy independence and meets environmental commitments.

Q&A





Thank You