Incentives and Drivers for Private Property Owners to Pursue Solar Photovoltaic Systems in South Africa

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S CUBE

URBAN REAL ESTATE RESEARCH UNIT

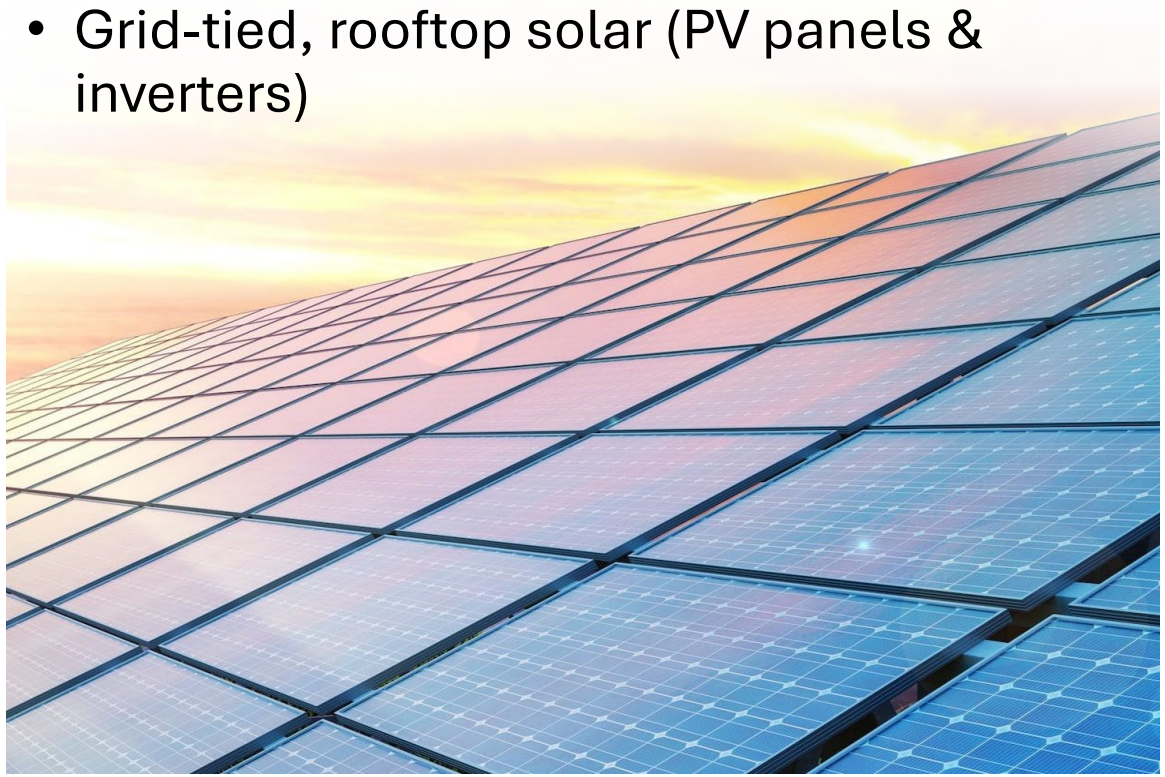
QUESTION

Is the move towards solar PV energy in South Africa’s private property sector motivated by regulatory incentives or other non-regulatory drivers?

SCOPE

INCLUDES

- Private embedded generation at residential and non-residential properties
- Solar PV systems only
- Grid-tied, rooftop solar (PV panels & inverters)



EXCLUDES

- Large-scale power producers & electricity wheeling
- Other renewable energy sources
- Battery-backup systems

South Africa's Energy Landscape

ELECTRICITY SUPPLY

- State-owned utility company: Eskom
- Supplies 95% of country's energy demand

ENERGY MIX

- Coal: 80%
- Nuclear: 4,5%
- Renewables: 13,5%
- Diesel: 2%

LOAD SHEDDING

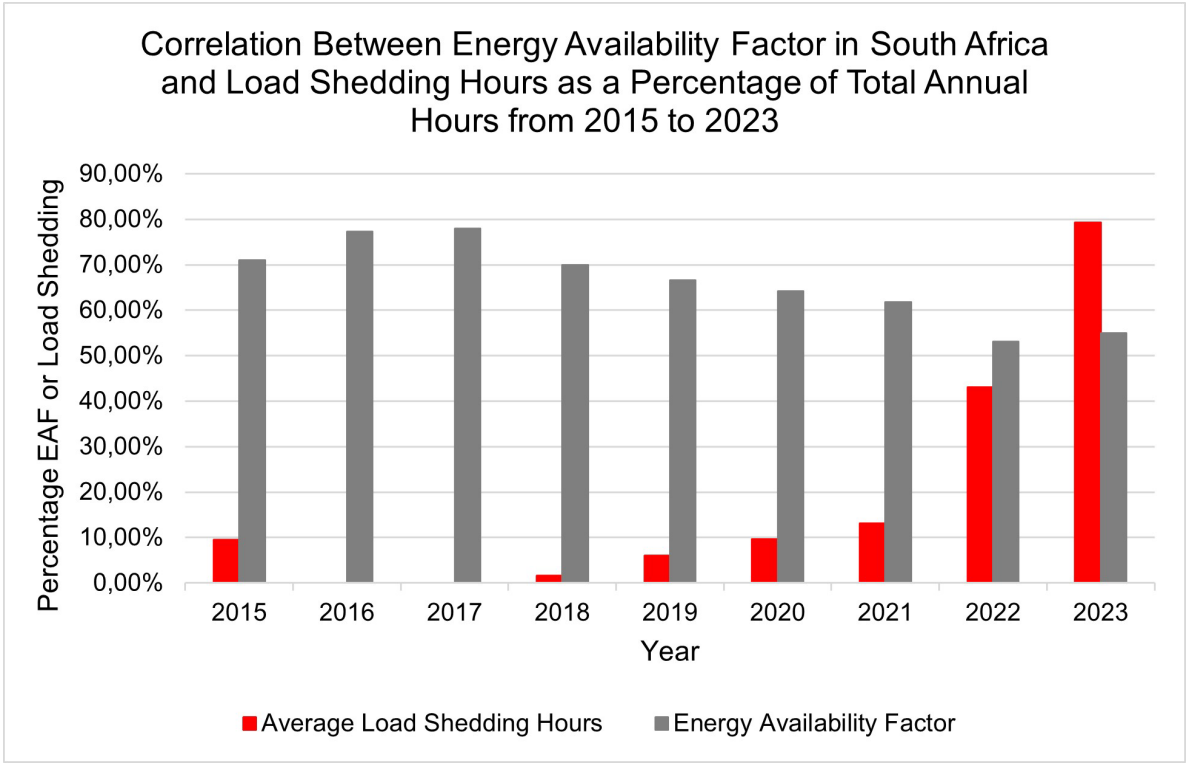
- Severe electricity supply & distribution constraints
- Regular and prolonged power cuts since 2018

REGULATORY INCENTIVES

- Temporary incentives for private-sector renewables
- Rooftop Solar PV increasingly important for energy security

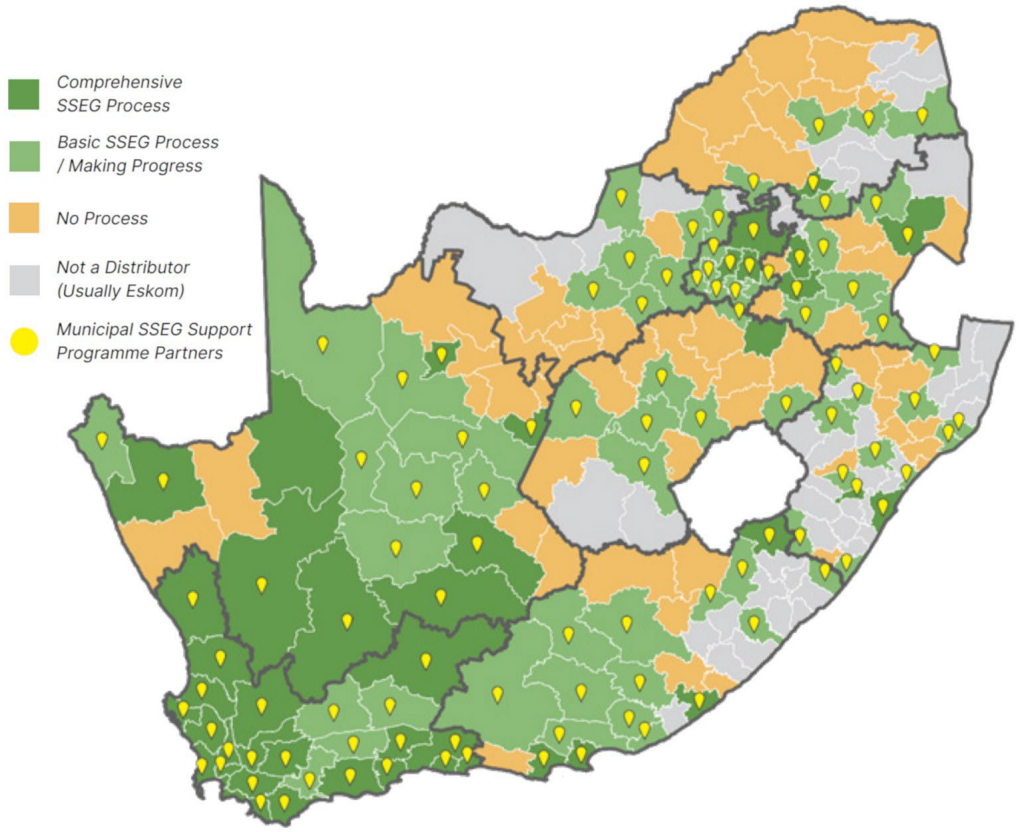
Load-Shedding Context

- Annual Peak Electricity Demand: 226 GW
- Declining Energy Availability Factor (EAF) since 2018
- Prescribed minimum EAF for network stability: 75%
- Load shedding implemented to cover generation shortfall
  - Load shedding peaked in 2023
  - Load shedding implemented 80% of the time
  - Aim: shed between 1-6 GW of electricity demand

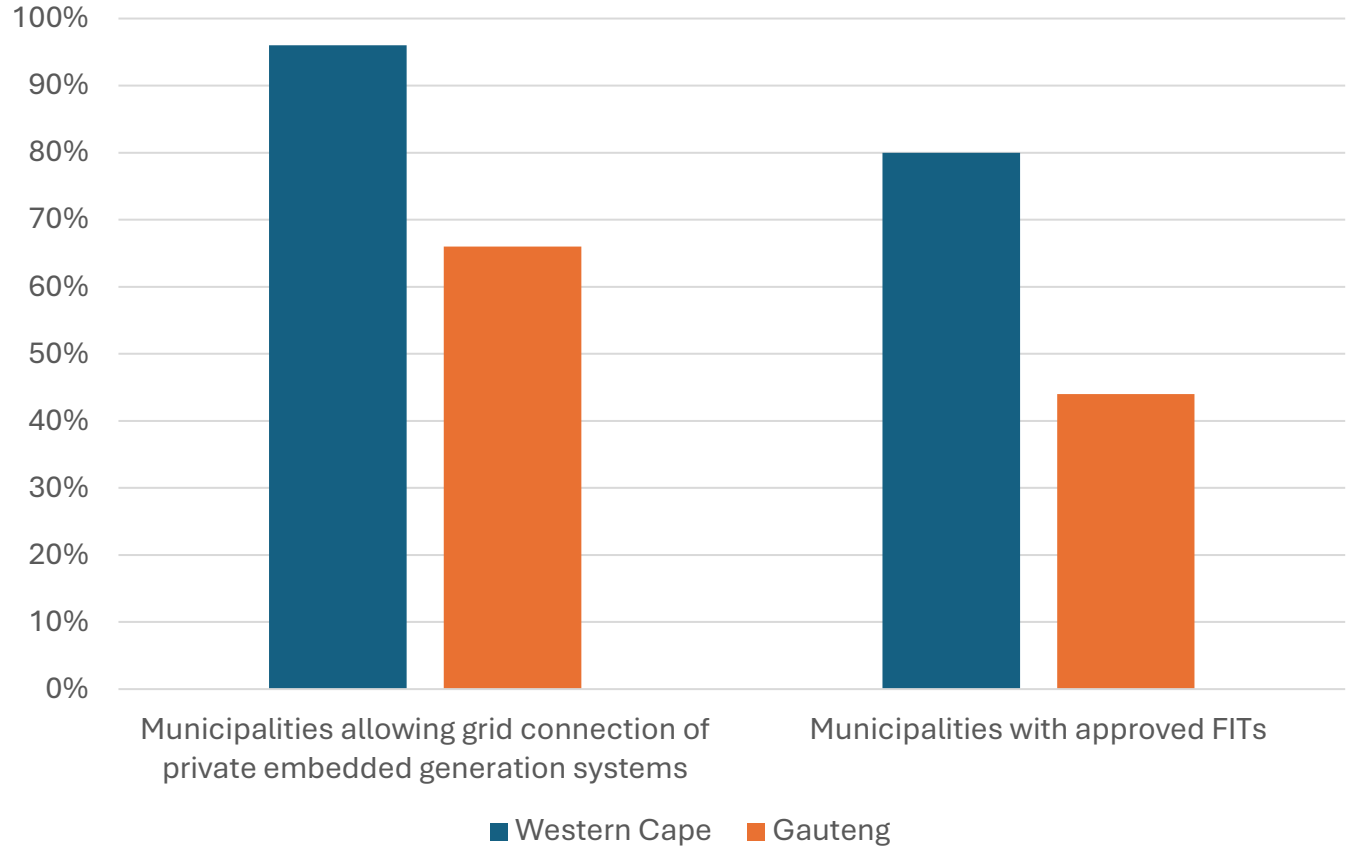


Municipal Regulation of SSEG

Municipal progress with small-scale embedded generation processes



Municipal uptake of private embedded generation by province



Regulatory Incentives for Private Energy Generation

NON-RESIDENTIAL PROPERTY OWNERS

FEED-IN TARIFF (FIT)

CAPITAL ALLOWANCE

RESIDENTIAL PROPERTY OWNERS

FEED-IN TARIFF (FIT)

TAX CREDIT

Regulatory Incentives for Non-Residential Property Owners

Requirements:

- If system > 1 MW: register with NERSA
- Obtain system approval from Eskom / municipality
- Install metering system

FITs:

- Currently, no FITs for Eskom customers
- City of Cape Town: 73,87c/kWh + 25c/kWh (Total FIT: $0,05/kWh)

Feed-in Tariffs

- **Section 12B** of Income Tax Act
- Capital expenditure deduction for assets used in renewable energy generation
- 1 Mar ‘23 – 28 Feb ‘25: Business can reduce taxable income by 125% of cost of renewable energy system

Capital Allowance

Regulatory Incentives for Residential Property Owners

Requirements:

- If system > 1 MW: register with NERSA
- Obtain system approval from Eskom / municipality
- Install metering system

FITs:

- Currently, no FITs for Eskom customers
- City of Cape Town: 78,98c/kWh + 25c/kWh (Total FIT: $0,05/kWh)

Feed-in Tariffs

- **Section 6C** of Income Tax Act
- 1 Mar ‘23 – 29 Feb ‘24: Income tax credit of 25% of solar PV panel cost
- Max credit: R15 000 ($780.62)
- Not applicable to inverters & batteries

Tax Credit

Non-regulatory Drivers of Private Embedded Generation

- Reduced greenhouse gas emissions
- Reduced carbon tax
- ESG reporting

ENVIRONMENTAL CONSIDERATIONS

- Eskom-generated electricity expensive
- Electricity tariff hikes above inflation

COST SAVINGS

- Micro-level: mitigates impact of load shedding
- Macro-level: reduces demand on national grid

ENERGY SECURITY

- Reduced operating costs
- Business continuation
- Tenant retention

TENANT REQUIREMENTS

- Tailored financial solutions from commercial banks
- Cover 70-100% of capital; 5-10 yr repayment period

GREEN-ENERGY FINANCE

METHODOLOGY

- **Qualitative Study**
- **Single Case-Study:**

  City of Cape Town
- **Semi-Structured Interviews:**
  - Private property owners
  - Solar practitioners

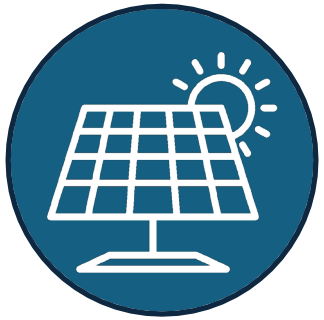
City of Cape Town

- Size: 2 441 km^2
- Population: 4 772 846
- Households: 1 452 825
- Second-largest economic hub in SA
- Solar PV power potential: 4,5 kWh/kWp

Participant Selection

- **Basic Criteria**: knowledge of solar PV systems & regulatory incentives
- **Criteria for <u>private property owners</u>:**
  - Listed / unlisted property funds
  - Own ≥ 5 properties in Cape Town
- **Criteria for <u>solar practitioners</u>:**
  - Solar PV experience in various property sectors
  - Know and understand national & municipal regulatory incentives

5 PRIVATE PROPERTY OWNERS



2 SOLAR PRACTITIONERS

1 DUAL PARTICIPANT

Data Analysis: Key Themes

Outlook on SA's Energy Landscape	
Demand for Solar Energy	
Regulatory Incentives	Section 12B Capital Allowance
	Section 6C Solar Energy Tax Credit
	Feed-in Tariffs
Non-Regulatory Drivers	Environmental Considerations
	Cost Savings
	Energy Security
	Tenant Requirements
	Green Energy Finance
Constraints: Private Embedded Generation	

Ranking Regulatory Incentives & Non-Regulatory Drivers

Driver	Property Sector				
	Residential	Offices	Retail	Industrial	Agricultural
Environmental Considerations	4	1	4	6	4
Cost Savings	2	3	1	2	1
Energy Security	1	5	2	3	2
Tenant Requirements	5	2	3	1	6
Energy Finance	3	4	5	4	3
Regulatory Incentives	6	6	6	5	5

Legend					
Most Relevant	Highly Relevant	Moderately Relevant	Somewhat Relevant	Slightly Relevant	Least Relevant
1	2	3	4	5	6

Constraints to Private Embedded Generation

Constraint	Property Sector				
	Residential	Offices	Retail	Industrial	Agricultural
Timing of Energy Generation	1	5	6	1	2
Imported Solar Panels	2	2	1	4	1
Rooftop Requirements	4	1	4	3	6
Level of Education	3	3	3	5	4
Availability of FiT's	5	4	5	6	5
Generation Capacity	6	6	2	2	3

Legend					
Most Relevant	Highly Relevant	Moderately Relevant	Somewhat Relevant	Slightly Relevant	Least Relevant
1	2	3	4	5	6

Conclusions

- National regulatory incentives favour non-residential property owners
- Solar PV uptake motivated by non-regulatory drivers, not regulatory incentives
- Regulatory incentives too small compared to capital outlay
- Single case study of Cape Town is context-specific and may not apply across South Africa.