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Regulation as an enabler, promoter, or obstacle to solar electricity generation in Africa

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Framing questions

A few key questions to understand the context…

- Why does regulation matter for solar scale-up?
- Where do African countries stand today on utility-scale solar rules and procurement pathways?
- What does “good regulation” look like from each stakeholder’s perspective?
- When and how do regulators act as enablers, promoters, or obstacles to utility-scale solar?

Why regulation matters for solar scale-up?

Context: huge resource, limited deployment

- Africa is home to ~60% of the best solar resources globally.
- Yet deployment has lagged—often due to investment and policy constraints, rather than technology.
- Solar PV costs have fallen sharply; in many contexts, it is the least-cost option for new generation.

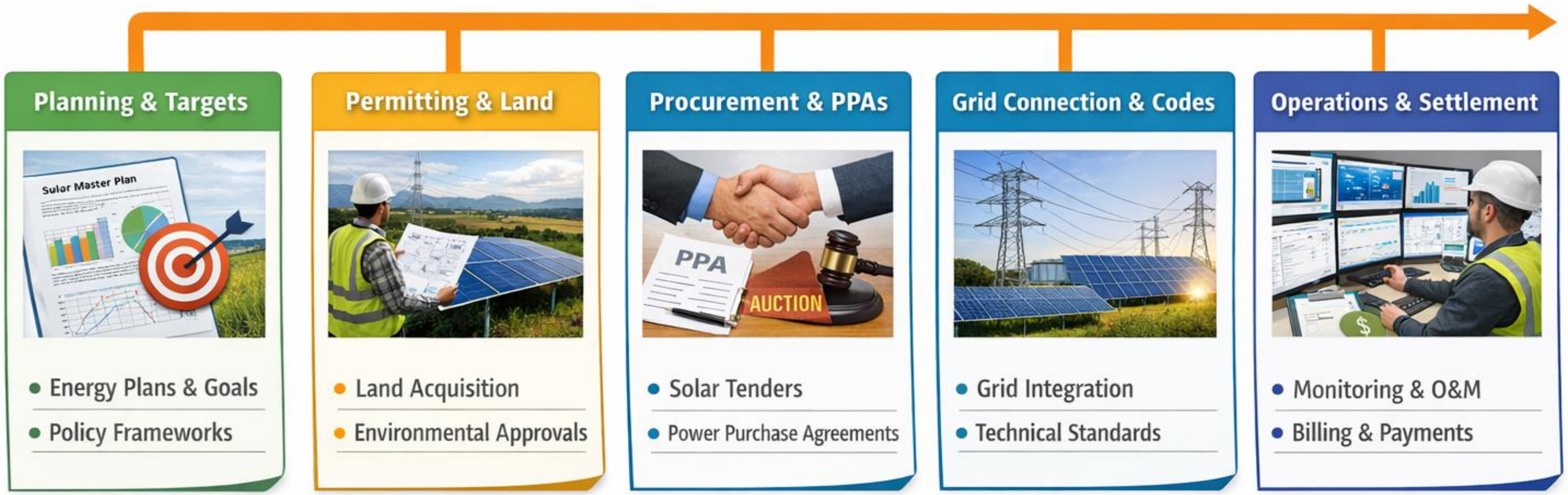
Mechanism: regulation shapes risk → price

Regulation affects the cost of capital through:

- Revenue certainty (tariffs, PPAs, settlement mechanisms)
- Offtaker creditworthiness; payment security
- Grid access (connection, curtailment, wheeling)
- Permitting timelines and land/environment approvals
- Currency convertibility and indexation rules.

Lower regulatory risk leads to lower required tariffs and faster project development.

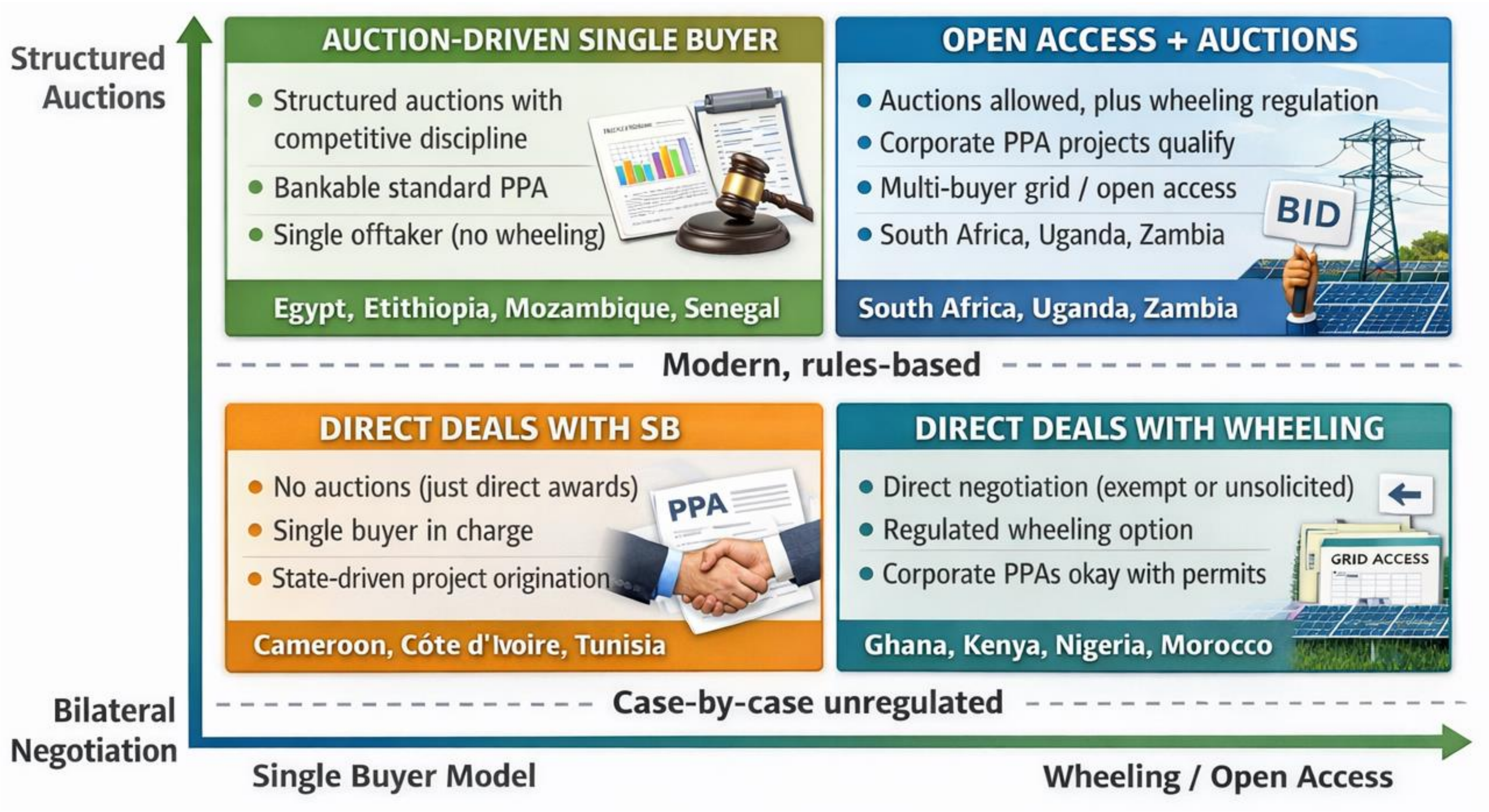
Where regulation touches the solar value chain?



- Integrated Resource Plans (IRPs) / renewable targets
- Licensing & registration (utility-scale and embedded generation)
- Competitive tenders / auctions and standard PPAs
- Tariff setting (FiT / net billing / cost-of-service) + indexation
- Grid codes, connection charging, curtailment rules
- Wheeling frameworks and open-access rules
- Metering + payment + Technical standards
- Rules for flexibility, ancillary service and other market products.
- Consumer protection, quality and safety standards

Solar projects succeed when rules, institutions, and infrastructure line up

Four archetypes for utility-scale solar procurement and regulation



Five stakeholder perspectives on utility-scale solar regulation

Utility / System Operator
Operability, controllability, grid security, and cost recovery

Consumers
Affordability, reliability, fairness, and transparency

Investors & Lenders
Bankability, enforceability, payment security, and FX certainty

Government
Least-cost expansion, fiscal discipline, and energy security

Regulator
Balance affordability, reliability, and investment while ensuring credibility through predictable decisions

Regulation’s three roles

The same regulatory instrument can produce different outcomes depending on its design, implementation, and credibility.

Enabler

Creates clarity and bankable predictability

- Licensing
- Procurement
- Tariff setting
- Dispute resolution.

Promoter

Promotes solar deployment through targeted mechanisms

- Interconnection code
- Grid access and curtailment
- Wheeling & open access
- Fiscal incentive

Obstacle

When it creates uncertainty, delays, complexity, or financial risk

- Permitting and land
- Grid access and curtailment
- Bankability
- Policy volatility

As an ENABLER: utility-scale procurement and bankable PPAs

Enabler

Effect:

more projects reach financial close, at lower tariffs.

- Competitive tenders/auctions with standard documents (RfP, PPA, grid connection agreements).
- Clear tariff indexation and change-in-law provisions.
- Payment security mechanisms (escrow accounts, guarantees, DFI-backed structures).
- Public disclosure and predictable timelines (bid windows, evaluation, financial close).

Morocco ➔ MASEN-led competitive procurement

- Centralised procurement + project development capacity. Noor Ouarzazate I (160 MW CSP)
- Demonstrates how bankable structures can mobilise large-scale finance.

South Africa / Senegal / Egypt ➔ Competitive programs

- South Africa: REIPPPP competitive bid windows (DMRE).
- Senegal: Scaling Solar tender achieved prices down to €3.8 cents/kWh (2018).
- Egypt: 2014 FiT scheme supported scale-up solar plant (incl. Benban Solar Park), alongside later market instruments.

As a PROMOTER: creating an attractive environment for solar

Promoter

Effect:

more actors invest (C&I, households, communities).

- Technical interconnection codes with clear and predictable processes & integration standards
- Predictable land allocation and permitting rules (land, ESIA, grid, procurement, tariff approvals)
- Transparent compensation methodologies (credits, avoided cost)
- Wheeling and open access for C&I customers

- **South Africa:** mature grid connection codes, wheeling rules, and streamlined EIA processes in Renewable Energy Development Zones (REDZ).
- **Kenya:** national grid code, explicit open access statute, detailed 2024 open access regulations.
- **Morocco:** grid access instruments and legal right of access under the renewable energy framework.
- **Nigeria:** formal grid code, eligible customer open-access rules, and clear licensing framework.

As an OBSTACLE: common regulatory bottlenecks that slow solar

Most solar delays are institutional: unclear processes, weak credit frameworks, and slow grid-related decisions.

1) Permitting and land

- Multiple sequential approvals with no statutory timelines
- Site allocation delays; unclear environmental procedures
- Slow permit and ESIA studies

2) Grid access and curtailment

- Non-transparent connection queues and inconsistent grid code enforcement
- Unclear cost-sharing for network upgrades
- Curtailment uncertainty

Example: South Africa: Eskom GCCA highlights constrained areas (incl. Northern Cape)

3) Bankability (tariffs, offtakers, FX)

- Weak contract enforcement and delayed payments by off-takers
- Tariffs below cost-recovery levels
- Weak indexation mechanisms
- FX mismatch (local-currency revenues vs hard-currency debt)

4) Policy volatility and reversals

- Moratoria on PPAs or shifting eligibility thresholds
- Retroactive rule changes → investor confidence

Example: Kenya introduced a PPA moratorium in 2021 and later moved to relax it.

Regulatory priority trade-offs and discussion agenda

Key trade-offs

- Low tariffs vs high project realisation rates
- Fast procurement vs transparency
- Local content vs bankability
- Grid security vs rapid solar growth
- Affordability vs cost recovery

1. Which risk is most binding today: payment, grid, FX, or permitting?
2. How should curtailment be governed to balance bankability and system security?
3. What minimum data should regulators require to manage solar integration credibly?
4. Which procurement model fits institutional capacity now—and what is the upgrade path?

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Thank You !