



Workshop

**RENEWABLE COLLECTIVE SELF-CONSUMPTION:  
ENERGY COMMUNITIES AND MINI GRIDS**



October 14, 2025 | Ankara, Türkiye

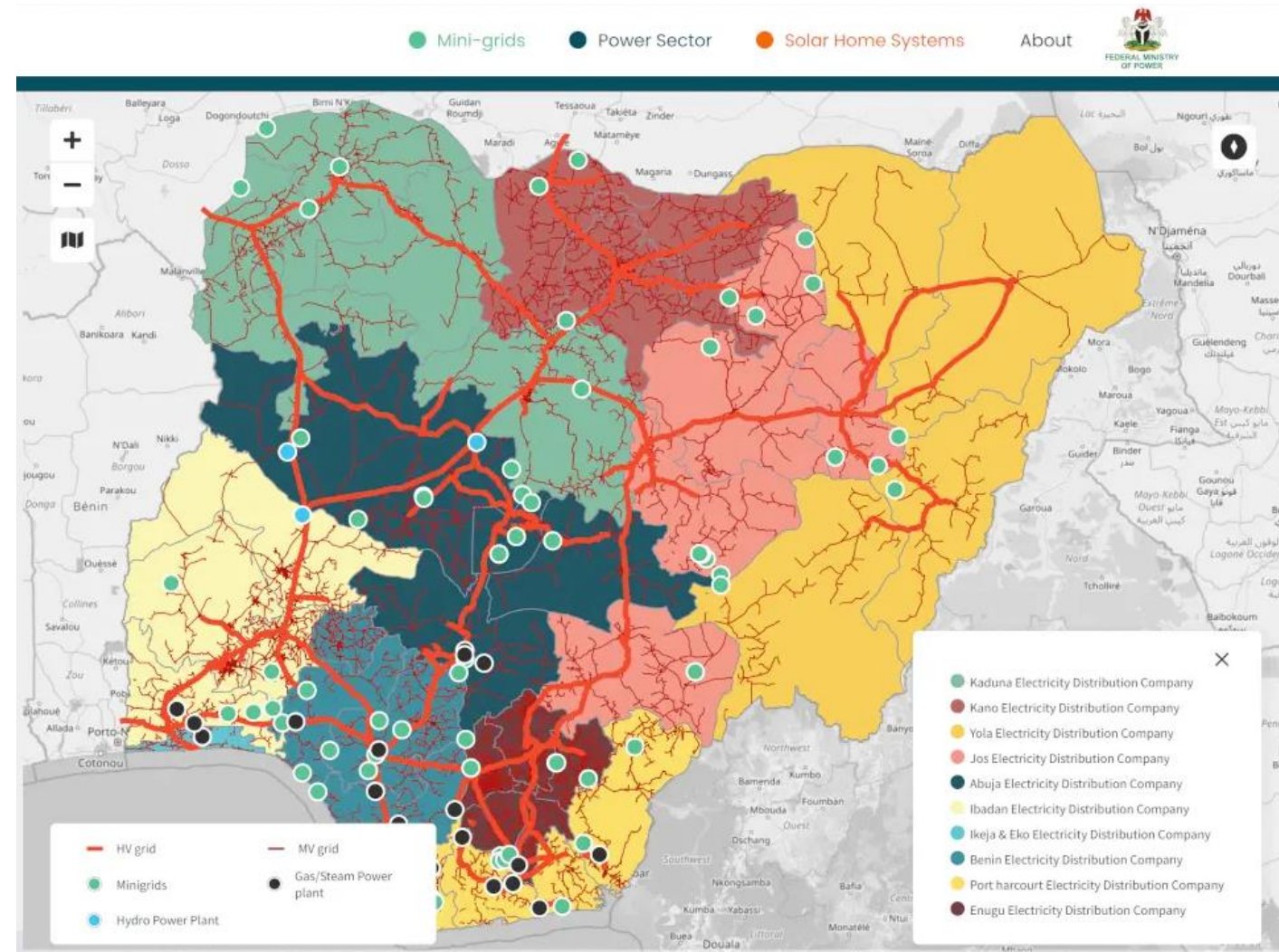
# Our Experience with Minigrid Regulations

**“How Nigeria turned energy poverty into opportunity—lessons for your markets.”**

Umar F. Mohammed  
Nigerian Electricity Regulatory Commission



- 46% of Nigerians live in rural areas; <40% have access.
- Extending the main grid is financially unsustainable.
- Mini-grids emerged as the most viable path for inclusive access.
- SHS complements mini-grids for dispersed households.



Our grid couldn't keep up with 200M people.  
What's your biggest access barrier?

- **Enabled by the 2005 Electric Power Sector Reform Act:** Set legal foundation for decentralized energy solutions targeting unserved rural areas.
- **2015–2016: Extensive Stakeholder Consultations:** Collaborated with GIZ, developers, financiers, and communities to address specific challenges like land tenure and currency volatility.  
Developers told us red tape was killing projects; we slashed approval times to weeks for systems under 100 kW."
- **Ratified November 2016:** Regulations for mini-grids up to 1 MW (isolated and interconnected).
- **Key Provisions:**
  - Streamlined Licensing: Simplified registration for systems <100 kW, approvals in weeks.
  - Cost-Reflective Tariffs: Negotiated directly with communities, overseen by NERC to balance affordability and viability.
  - Grid Integration Protections: Compensation mechanisms to de-risk operator investments if the main grid extends to sites.
- **Impact:** Catalyzed the REF, blending public and private capital for scale.

## THE TURNING POINT: FROM POLICY GAP TO REGULATION



2005

Electric Power  
Sector  
Reform Act



2013–2015

Pilot  
projects



2015–2016

Consultations

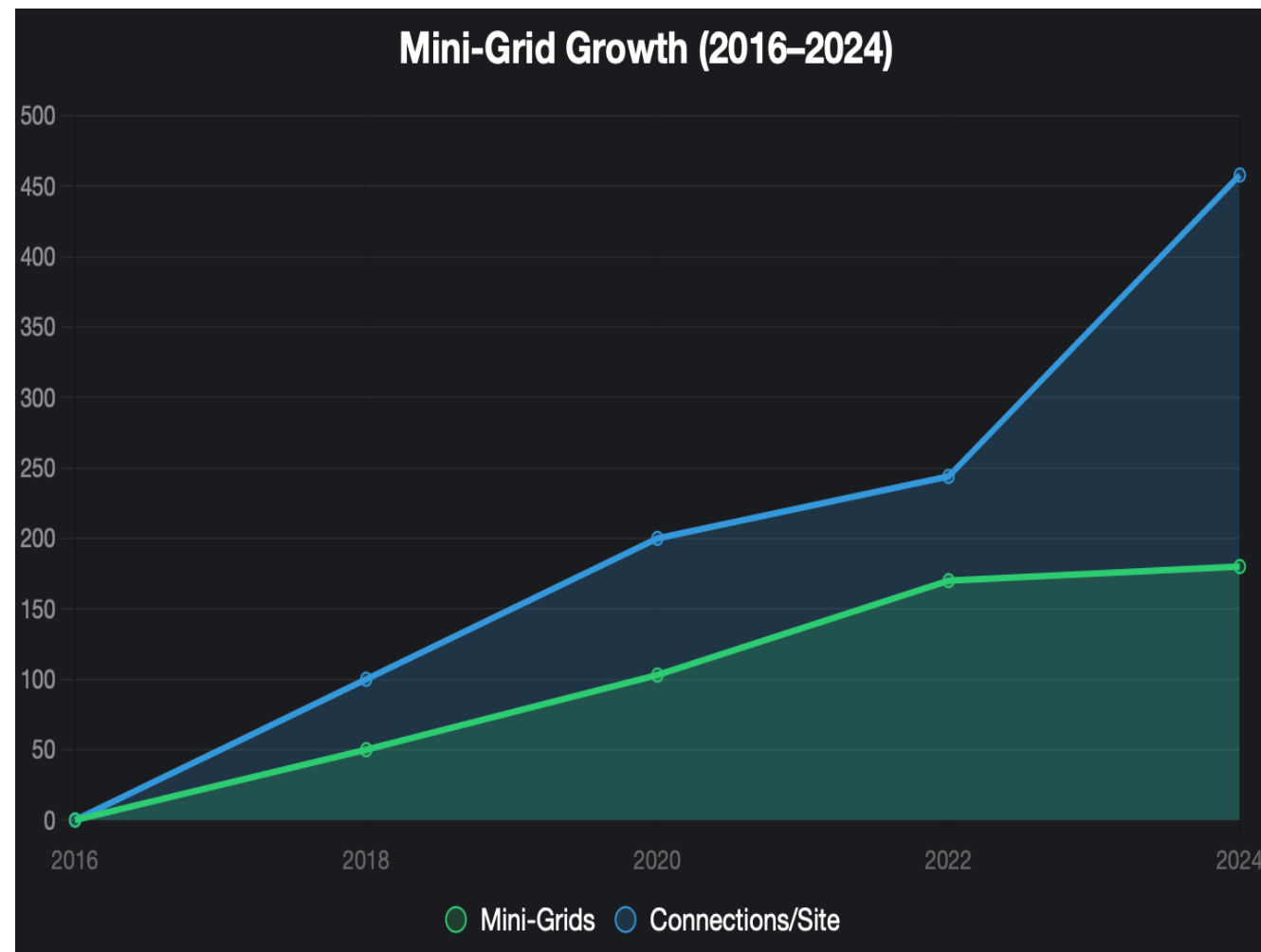


Nov 2016

Ratification of  
the Mini-Grid  
Regulations

How do you balance speed and rigor in your regulatory approvals

- Enabled NEP (\$350M World Bank program).
- 180+ mini-grids commissioned; 14 MW capacity.
- ~6 million Nigerians now served (mini-grids + SHS).
- Avg. 458 connections/site (up from 244 in 2022).
- 4,000+ local jobs created across the country.



“Grants covering 50–90% of costs unlocked private capital.”  
Note CAPEX drop (\$1,250 to \$707/connection, 2020–2024).









## Toto mini-grid (interconnected pilot):

- 352 kWp PV + 972 kWh battery + 400 kW gen-set.
- Serves 2,000+ consumers (~14,000 people).
- 99% reliability, surpassing the national grid.
- Enabled grid interconnection with DisCo.
- Boosted local economy: cold storage, irrigation, and SMEs.



Diesel backups were a costly lesson for reliability  
*Could interconnected pilots work in your regions?*

Challenge	Solution
High CAPEX (\$7,200/KWp) 	Blended finance & Local sourcing
Grid encroachment 	Compensation protocols (2023 review)
Long approvals 	Digital one-stop portal (-70% time)
Tariff skepticism 	Community consultation and equity models to build trust 
FX volatility 	Indexed tariff guidance

Forex swings doubled costs overnight; we were unprepared.” How do you balance investor & consumer needs?

Nigeria's experience offers adaptable strategies:



One-Stop Permitting: Build investor confidence.



Productive-Use Linkages: Tie support to demand generation.






Interconnection Pilots: Prove reliability, scale up gradually



Cross-Cutting Enabler: Transparent tariff negotiation with oversight.

Permitting portals cut delays by 70%—a game-changer for any bureaucracy.

What's Working	Key Lessons
The DARES program scaling \$750M pipeline	Regulation catalyzes markets when it removes uncertainty
Focus: interconnected mini-grids, local manufacturing. 	Community ownership sustains legitimacy
Data-driven subsidy targeting for equity 	Partnerships, not subsidies alone, drive scale
Regional harmonization via ECOWAS & AFUR 	

What's your biggest mini-grid challenge?





NERC Mini-Grid Regulations (2016)



World Bank NEP/DARES



REA Nigeria - Mini-Grids



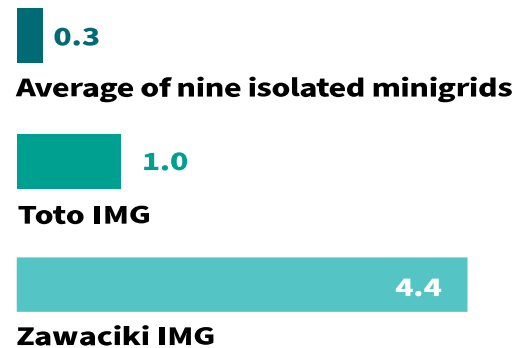
AMDA Resources



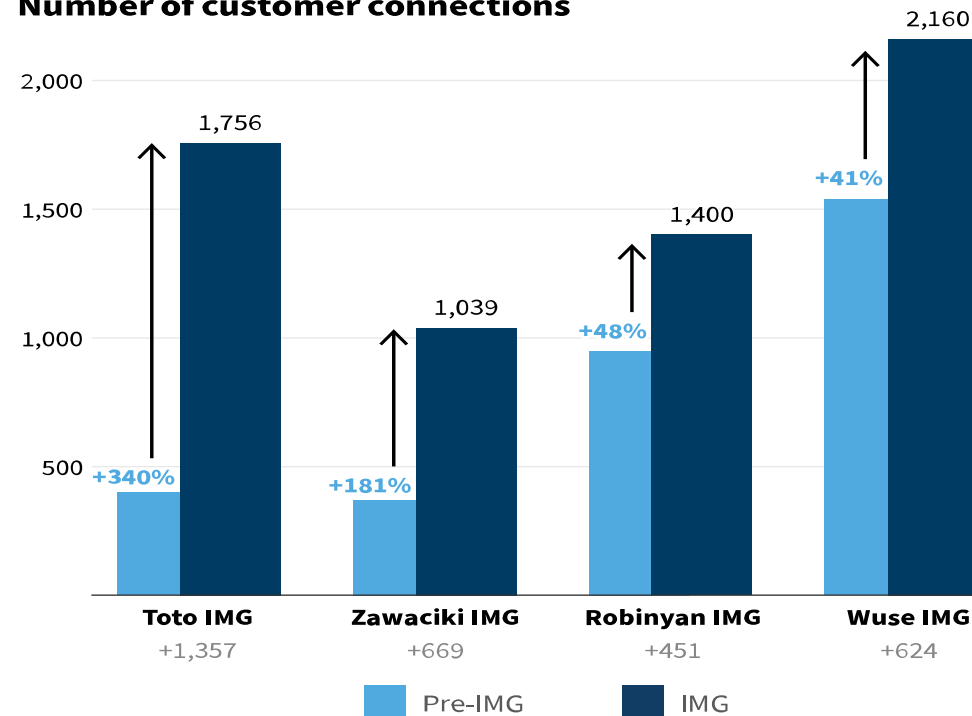
SEforALL Nigeria Map

### Impact of IMGs on number of connections and electricity usage in IMG communities

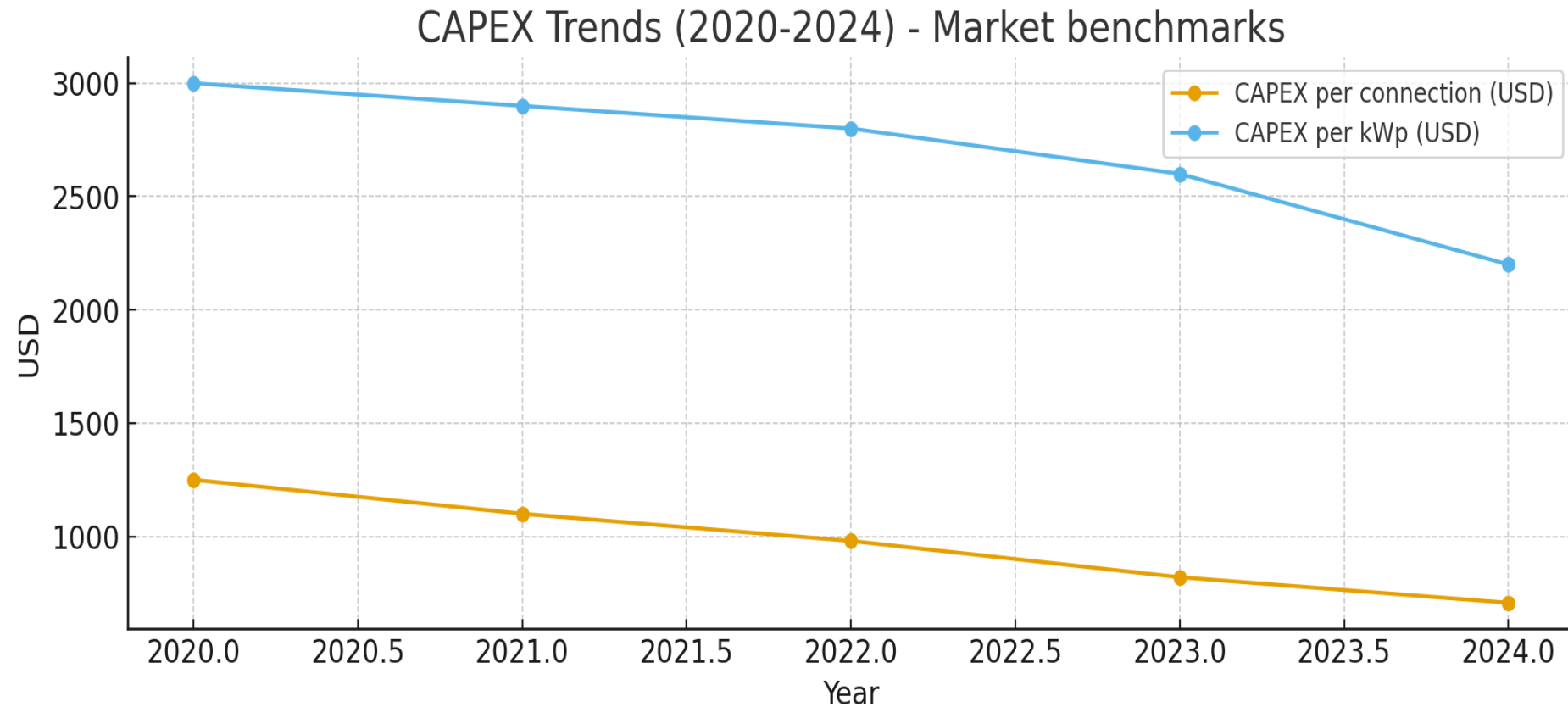
#### ACPU of IMGs and isolated minigrids (kWh/day)



#### Number of customer connections



RMI Graphic. Source: RMI analysis of IMG pilot data





**THANK YOU  
FOR YOUR ATTENTION!**

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