



CHIEF CONSULTANT

Pakistan BESS & Battery Storage Market

Strategic Roadmap for BESS MARKET

Prepared by: Chief Consultant Pakistan | Date: 02/07/2026



**CHIEF
CONSULTANT**

Lahore, Pakistan

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Why Chief Consultant Pakistan

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WHY THIS MATTERS NOW

Pakistan's energy transition is accelerating



CHIEF CONSULTANT

Premium Tech | Electrical Experts

Lahore, Pakistan

WHY THIS MATTERS NOW

Key Points

- Shift from Net-Metering to Net-Billing is changing solar economics overnight
- Exporting daytime solar now earns far less than buying evening power costs
- Frequent grid instability is pushing businesses toward backup and resilience
- Industrial and commercial users are shifting toward captive generation
- Rising tariffs make energy storage attractive across every customer segment

Key Metric

8.75 GWh

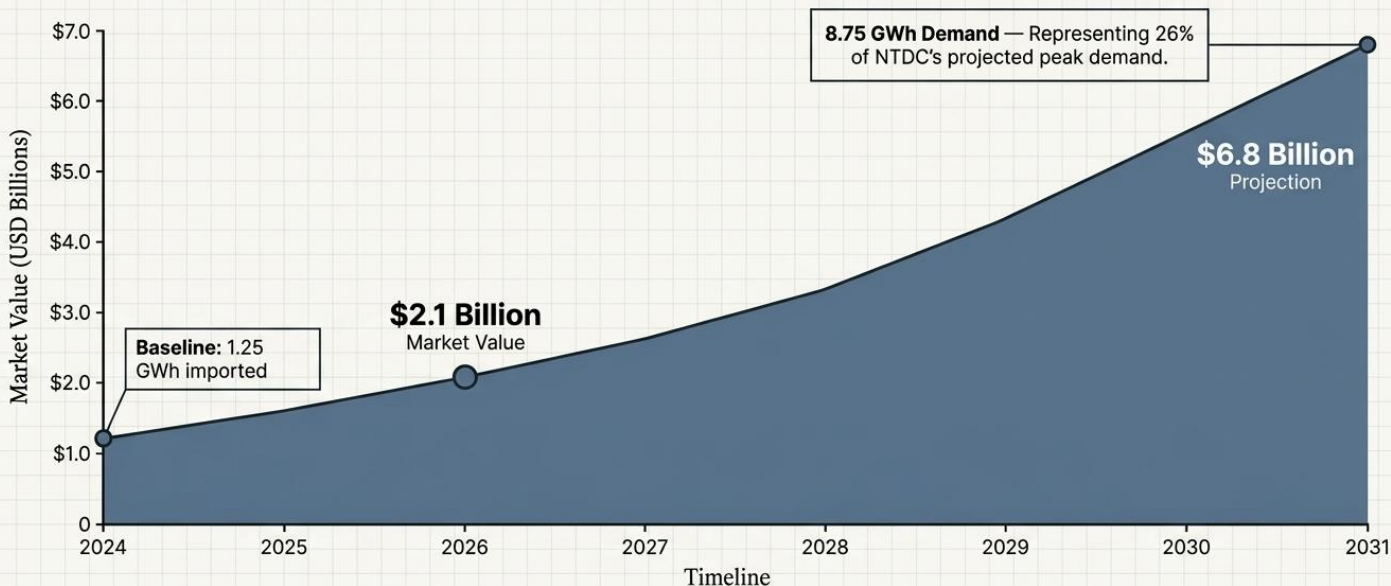
Projected BESS import demand by 2030

Additional Information

Pakistan imported an estimated 1.25 GWh of battery storage in 2024 (IEEFA). At the current pace, this could grow to 8.75 GWh by 2030 | representing 26% of NTDC's projected peak demand.

WHY THIS MATTERS NOW

MARKET MAGNITUDE & TRAJECTORY



Energy storage is no longer a niche backup solution; it is a rapid, macro-economic shift driven by an increasingly unstable grid and rising tariffs.

WHAT WE ARE EVALUATING FOR XXXXX GROUP

THE DATA-DRIVEN STRATEGIC ARENA

STRENGTHS

1% / 90%

Unmatched capacity to capture the Next Generation Policy's 1% reduced sales tax and 90% accelerated depreciation through established local industrial infrastructure.

OPPORTUNITIES

\$6.8 Billion

Capitalizing on the explosive 5-year growth trajectory and capturing the massive Industrial & Commercial demand segment.

WEAKNESSES

**>250 kW
Interconnection**

Navigating the dense bottleneck of NEPR compliance codes, SPDs, and mandatory anti-islanding integration for large commercial deployments.

THREATS

Global Big 5

The deep-pocketed saturation of established global importers actively dominating the raw supply chain.

PAKISTAN BESS MARKET AT A GLANCE

\$2.1B

2026 Market
Size (Est.)

\$6.8B

2031 Market
Projection

26%

Of Peak Demand
by 2030

5

Customer
Segments Mapped

**Industrial &
Commercial
\$760M**

Driven by peak demand charges.
Payback compressed to 2.5-6 years.

**Government & Utility
\$690M**

Essential for grid frequency
regulation and resiliency.

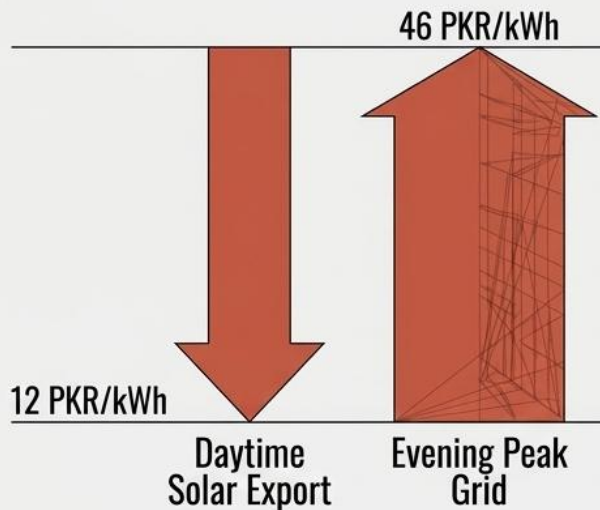
**Housing Societies & Telecom
\$300M**

Accelerated by recent 1 GWh
local supply agreements.

Industrial and Commercial clients, trapped by Time of Use (ToU) tariffs, represent the most lucrative, immediate target for ██████ Group's manufactured assets.

ARBITRAGE WATERFALL: NET-METERING TO NET-BILLING FINANCIAL SHIFT

THE ENERGY TRAP (WITHOUT BATTERY)



THE STORAGE ESCAPE (WITH BATTERY)

Effective Solar Arbitrage(PKR/kWh) = Peak Tariff – Net-Billing Export Rate

**34 PKR/kWh
NET CASH PROFIT**

Effective Solar Arbitrage(PKR/kWh) = Peak Tariff – Net-Billing Export Rate

Effective Solar Arbitrage(PKR/kWh) = Peak Tariff – Net-Billing Export Rate

The transition to Net-Billing changes solar economics overnight. Storing a unit of solar power instead of selling it back is now worth roughly **34 PKR** in pure net savings.

PAKISTAN BESS MARKET AT A GLANCE

Market Segmentation	Consumer Category	Applicable Tariff	Type of Establishment	Sanctioned Load	BESS Usage	Size of BESS (kWh)	Energy Arbitrage (PKR/kWh)
Residential	Single-phase	Slab-wise progressive	Small to medium households (5-10 marla)	Less than 5 kW	Backup power, solar shifting, slab-jump prevention	2.4 - 5 kWh	~28.00 - 35.00 (Solar)
	Three Phase	Time of Use (ToU)	Large households (1-2 kanal), luxury villas	5~25 kW	Energy arbitrage, peak shaving, solar shifting	10 - 30 kWh	34.85 (Solar)
Commercial	Single-phase	General Supply (Flat)	Small retail shops, standalone ATMs, micro-clinics	Less than 5 kW	Backup power, UPS replacement	2.4 - 5 kWh	~25.00 - 30.00 (Solar)
	Three Phase (Cat-I)	Time of Use (ToU)	Medium-sized offices, restaurants, small banks	5~25 kW	Energy arbitrage, peak shaving, diesel displacement	15 - 50 kWh	8.67 (Grid) / ~35.00+ (Solar)
	Three Phase (Cat-II)	Time of Use (ToU)	Plazas, supermarkets, petrol stations, large clinics	25~75 kW	Energy arbitrage, peak shaving, diesel displacement	50 - 150 kWh	8.67 (Grid) / ~35.00+ (Solar)
Industrial	Three Phase (Cat-I)	Industrial Supply ToU	Small workshops, light manufacturing	5~25 kW	Renewable integration, ToU optimization	20 - 50 kWh	12.85 (Grid) / ~34.00+ (Solar)
	Three Phase (Cat-II)	Industrial Supply ToU	Flour mills, cold storages, medium manufacturing	25~75 kW	Peak shaving, ToU optimization, diesel saving	50 - 200 kWh	12.85 (Grid) / ~34.00+ (Solar)
	Three Phase (Cat-III)	Industrial Supply ToU	Textile units, large cold storages, auto parts	75~500 kW	Peak shaving, energy arbitrage, frequency regulation	200 - 1000 kWh	12.85 (Grid) / ~34.00+ (Solar)
	Three Phase (Cat-IV)	Industrial Supply ToU	Cement, steel, large textiles, heavy manufacturing	>500 kW	Large-scale peak shaving, solar integration	1 MWh - 5 MWh+	12.85 (Grid) / ~34.00+ (Solar)

PAKISTAN BESS MARKET AT A GLANCE

Market Segmentation	Consumer Category	Applicable Tariff	Type of Establishment	Sanctioned Load	BESS Usage	Size of BESS (kWh)	Energy Arbitrage (PKR/kWh)
Transport/EVCS	Single Phase-I (Level -1 Chargers)	EVCS / General Commercial	Home EV chargers, slow charging stations	2~5 kW	Load balancing, solar charging	10 - 20 kWh	~28.00 - 34.00 (Solar)
	Three Phase-II (Level -2 Chargers)	EVCS ToU	Destination chargers (malls, offices)	5~50 kW	Demand charge reduction, grid buffering	50 - 150 kWh	8.67 (Grid) / ~35.00 (Solar)
	Three Phase-III (HVDC Charger)	EVCS ToU	Highway fast-charging hubs (DCFC)	50~200 kW	Grid constraint mitigation, high-power buffering	200 - 500 kWh	8.67 (Grid) / ~35.00 (Solar)
Government	Cat-I	General Supply (Flat)	Local union councils, small post offices, NADRA registration centers	1~5 kW	Backup power, seamless UPS replacement, continuous civic operations	5 - 10 kWh	N/A (Flat Tariff)
	Cat-II	General / Public Water Works ToU	Government secretariats, commissioner offices, medium WASA pumping stations	5~500 kW	Daytime solar optimization, peak shaving, diesel generator displacement	50 - 500 kWh	12.00 (Grid) / ~34.00 (Solar)
	Cat-III	Bulk Supply / Large Water Works ToU	Large public hospitals (DHQs), municipal WASA plants, universities, strategic bases	>500 kW	Utility-scale peak shaving, grid resiliency, critical uninterruptible power	500 - 2000 kWh+	8.67 (Grid) / ~34.00 (Solar)

COMPETITIVE & REGULATORY SNAPSHOT

- Established global players | Huawei, BYD, CATL, Sungrow, GoodWe are already active in Pakistan's BESS market
- Local assemblers such as Treet Daweoo Battery are preparing to invest in local BESS manufacturing an early-mover opportunity
- Regulatory landscape spans NEPRA/DISCO approvals, import duties, HS codes and recycling requirements
- A full competitor benchmarking table (pricing, warranty, market position) will be delivered in the detailed report

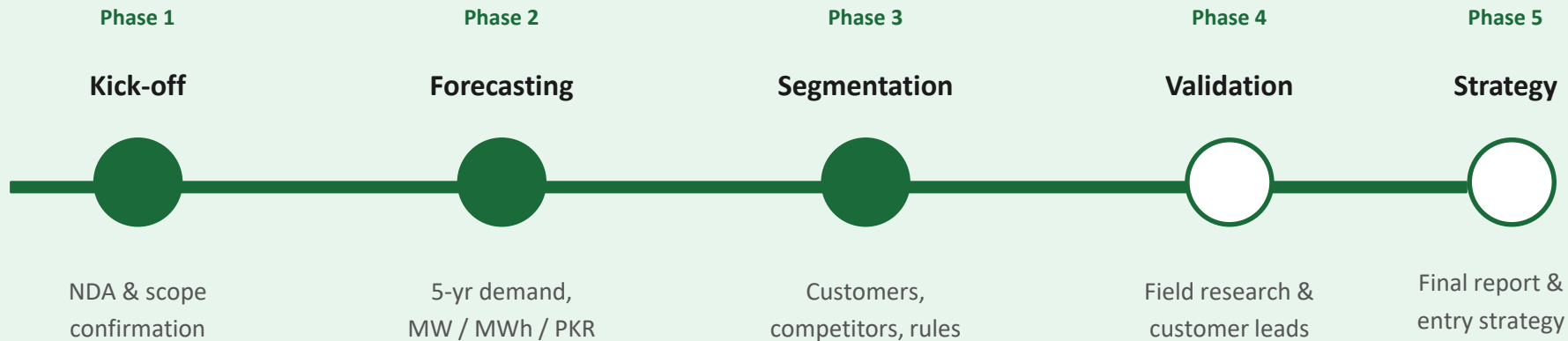
Player Category	Key Brands	Market Position & Opportunity
Global Importers	Huawei, BYD, CATL, Sungrow, GoodWe	Currently active and dominating the imported BESS market in Pakistan.
Local Assemblers	Treet Daewoo Battery	Preparing to invest in local BESS manufacturing;

COMPETITIVE & REGULATORY SNAPSHOT



The market is lopsided. Global importers dominate supply, but local assembly is virtually empty. Moving now secures definitive early-mover dominance.

OUR ROADMAP — 5 PHASES



★ Note: Phases 1~3 draw on secondary research and our existing market data. Phases 4~5 (customer leads, pricing, go-to-market) require field research as a next-stage workflow.

THE MICRO-ECONOMICS: SINGLE 10 kWh LFP UNIT PAYBACK

Scenario A: Grid-Only Arbitrage

Peak vs. Off-Peak Charging

Annual Savings: 55,700 PKR



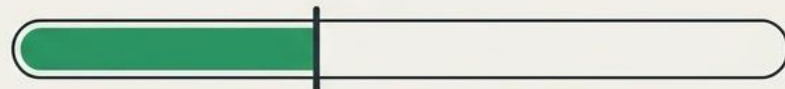
10.77 Years Payback

Effective Arbitrage Spread:
~15.26 PKR/kWh (Peak - Off-Peak)

Scenario B: Solar + BESS Arbitrage

Solar Charging vs. Peak Grid Avoidance

Annual Savings: 126,011 PKR



4.76 Years Payback

Effective Solar Arbitrage Spread:
~34.52 PKR/kWh (Peak - Net-Billing)

The marriage of existing solar assets with new battery storage compresses the ROI timeline by over 50%. This 4.76-year payback on a single unit forms the undeniable financial engine driving macro market demand.

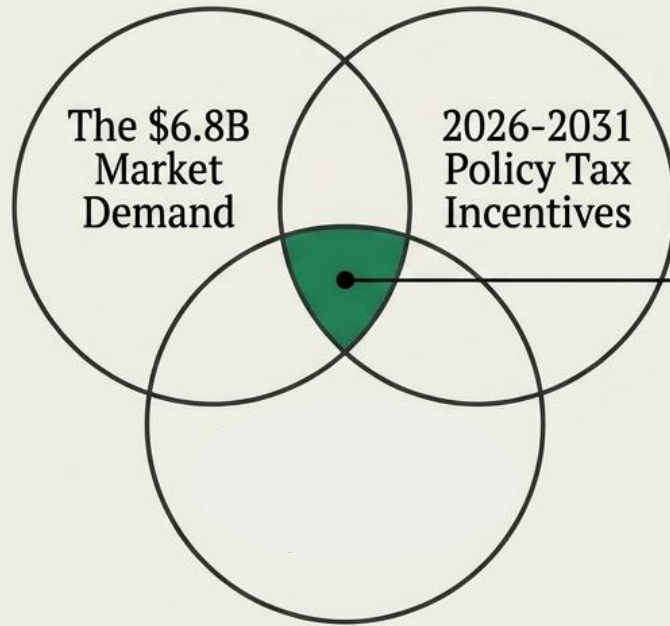
THE ECONOMICS THAT MATTER (GRID ONLY)

Specific Case for 10 KWH BESS (LFP)				
	Peak	Off Peak	Total	
Energy Spread:	46.85	34.53	12.32	
	Capacity	Round Trip Efficiency	Energy Spread	Total
Daily Energy Savings:	10	0.855	12.32	105.336
	Daily Energy Saving	Number of Days	Total	
Annual Energy Savings:	105.336	365	38447.64	
	Hourly Peak Demand	Cost per KW MDI	Number of Months	Total
Annual MDI Savings:	2.13	675	12	17253
	Annual Energy Savings:	Annual MDI Savings:	Total	
Total Annual Savings:	38447.64	17253	55700.64	
Battery Cost	600000			
Payback Period:	10.77			

THE ECONOMICS THAT MATTER (WITH SOLAR)

Specific Case for 10 KWH BESS (LFP)				
	Peak	Off Peak	Total	
Energy Spread:	46.85	12	34.85	
	Capacity	Round Trip Efficiency	Energy Spread	Total
Daily Energy Savings:	10	0.855	34.85	297.9675
	Daily Energy Saving	Number of Days	Total	
Annual Energy Savings:	297.9675	365	108758.1375	
	Hourly Peak Demand	Cost per KW MDI	Number of Months	Total
Annual MDI Savings:	2.13	675	12	17253
	Annual Energy Savings:	Annual MDI Savings:	Total	
Total Annual Savings:	108758.1375	17253	126011.1375	
Battery Cost	600000			
Payback Period:	4.76			

STRENGTHS & OPPORTUNITIES: THE POLICY INTERSECTION

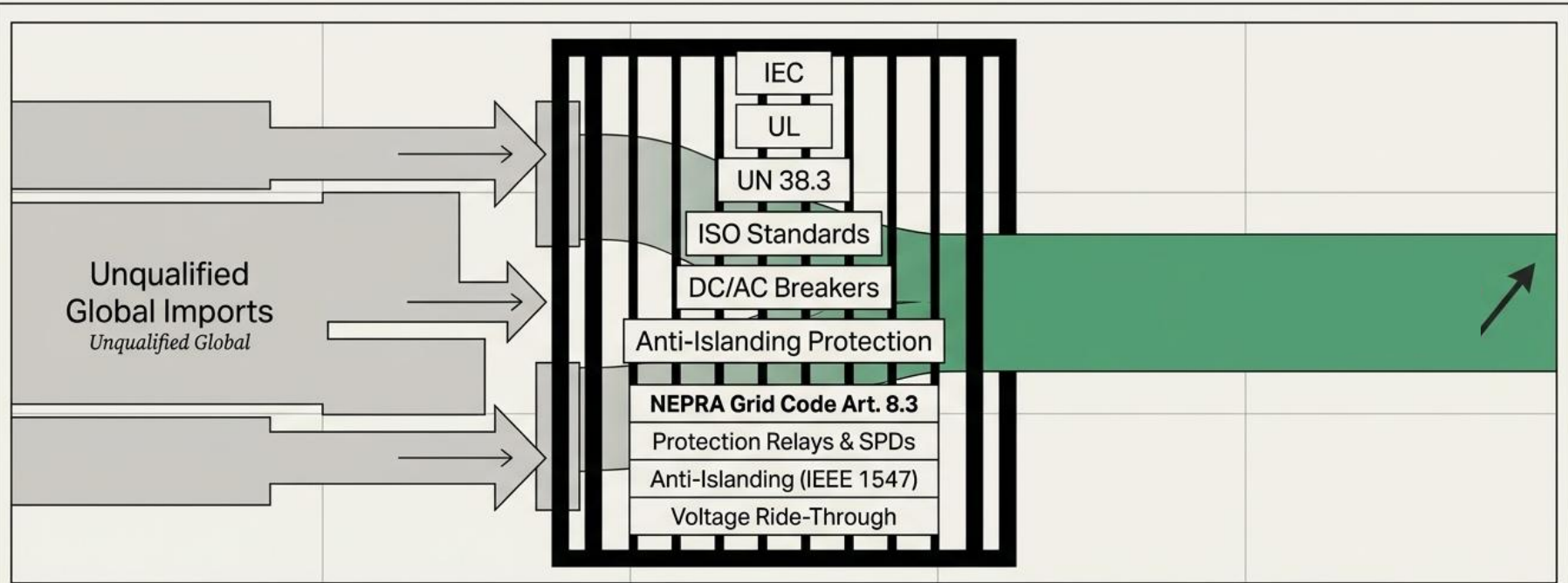


Next Generation Energy Storage Policy 2026-31 Benefits

1. 1% Reduced Sales Tax
2. 90% Accelerated Depreciation

The domestic policy is practically engineered to reward large-scale, established local industrial groups who pivot early, creating an artificial margin advantage over foreign entities.

WEAKNESSES & THREATS: THE REGULATORY MOAT



NEPRA's stringent protection schemes for >250 kW deployments are not weaknesses; they are your ultimate moat. Ensuring local assembly inherently meets these codes provides commercial clients with immediate grid-approval, locking out low-tier competition.

EXECUTION: NEXT STEPS & PARTNERSHIP



THE CHIEF CONSULTANT ADVANTAGE

Credentials Dashboard



Engr. Ikram Ullah | CEO, 33+ yrs, ex-GEPCO



Data Analysis
Hosting Capacity Studies

**IESCO LOAD FLOW
MAPPING**



330+ bprs
Iesco Load Flow Mapping

**OMC BESS
COMMERCIAL PLANNING**



>60B+ Market
OMC Comnet Planning

THE ROADMAP IS CLEAR. THE POLICY WINDOW IS OPEN. FIELD RESEARCH AND STRUCTURAL FORECASTING COMMENCE IN PHASE 2.



THANK YOU

We are committed to continue excellence.

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$$\text{Effective Slab Arbitrage(PKR/kWh)} = \text{Upper Slab Rate} - \text{Lower Slab Rate}$$

$$\text{Effective Solar Arbitrage(PKR/kWh)} = \text{Peak Tariff} - \text{Net-Billing Export Rate}$$

$$\text{Effective Grid Arbitrage(PKR/kWh)} = \text{Peak Tariff} - \left(\frac{\text{Off-Peak Tariff}}{\text{Round-Trip Efficiency}} \right)$$

In plain layman terms, **34 Rupees** represents your **net cash profit** on every single unit (kWh) of electricity you shift from day to night.

Think of your battery as a financial storage locker. Here is exactly what that 34 Rupee number means to a business owner or homeowner:

our focus is strictly on the new **Pakistan Next Generation Energy Storage Policy 2026–31**. To capture the 1% reduced sales tax and 90% accelerated depreciation, our manufacturing roadmap is explicitly designed to hit the government's 70% Domestic Value Addition (DVA) targets by 2028. Furthermore, we will ensure that every system rolling off your assembly line inherently meets NEPRA's strict interconnection codes, meaning your commercial clients will never face a grid-approval bottleneck.