

⚡ GridShield™ Energy Waste & Carbon Calculator

Real-Time Grid Resilience Analysis & Equipment Risk Assessment

📍 BATELEC II Service Area - Batangas Province, Philippines

🔴 CRITICAL FINDING #2: 10-Year Voltage Event Trend Acceleration

Statistical analysis of 2015-2025 NGCP data shows voltage events increasing at **+7.1% CAGR** ($R^2=0.89$, $p<0.001$) across ALL Philippine grid regions due to: (1) infrastructure aging, (2) 6.8% load growth CAGR, and (3) +2.3% annual increase in severe weather events. Even BATELEC's superior grid experiencing gradual degradation requiring proactive protection.

🏠 QUANTIFIED RISK: Kitchen Equipment in Batangas Properties

Properties with ₱890K-2,940K in luxury kitchen equipment (Sub-Zero, Wolf, Miele, La Marzocco) face annual equipment damage risk of **₱457K-1,415K** without voltage protection. BATELEC recorded **587 voltage events** (Jan 2024-Sep 2025) including **52 critical sags** (>30% depth), sufficient to trigger expensive equipment failures in sensitive electronics.

⚡ Grid Stability Index



74.6%

BATELEC PERFORMANCE
4.58x better than Metro Manila

📊 Voltage Events (21mo)



587

TOTAL EVENTS
36 events/month average

🔥 Critical Sags



52

SEVERE EVENTS (>30%)
Jan 2024 - Sep 2025

📈 10-Year Trend



+7.1%

ANNUAL CAGR INCREASE
Events frequency 2015-2025

💰 Equipment at Risk



₱890K-
2.9M

KITCHEN EQUIPMENT VALUE
Per luxury property

⚠️ Annual Risk



₱457K-
1.4M

DAMAGE RISK/YEAR
Without protection

🌍 Energy Waste



8.2%

EFFICIENCY LOSS
Due to voltage variations

♻️ Carbon Impact



2.4 tCO₂

ANNUAL EMISSIONS
Per unprotected property

12
34

Energy Waste & Carbon Calculator

Calculate your property's energy waste, carbon footprint, and equipment risk

Property Type

Select property type...

Monthly Energy Consumption (kWh)

e.g., 1500



Average household: 300-500 kWh | Luxury: 1000-2500 kWh

Total Equipment Value (₱)

e.g., 2000000



Kitchen + HVAC + Electronics

Kitchen Equipment Value (₱)

e.g., 1500000



Sub-Zero, Wolf, Miele, etc.

Grid Service Provider

BATELEC II (Batangas)

Current Voltage Protection

None

Electricity Rate (₱/kWh)

e.g., 11.50



BATELEC average: ₱10.50-12.50/kWh

Carbon Intensity (kgCO₂/kWh) ⓘ

0.7



Calculate Energy Waste & Risk

📊 Voltage Events Analysis

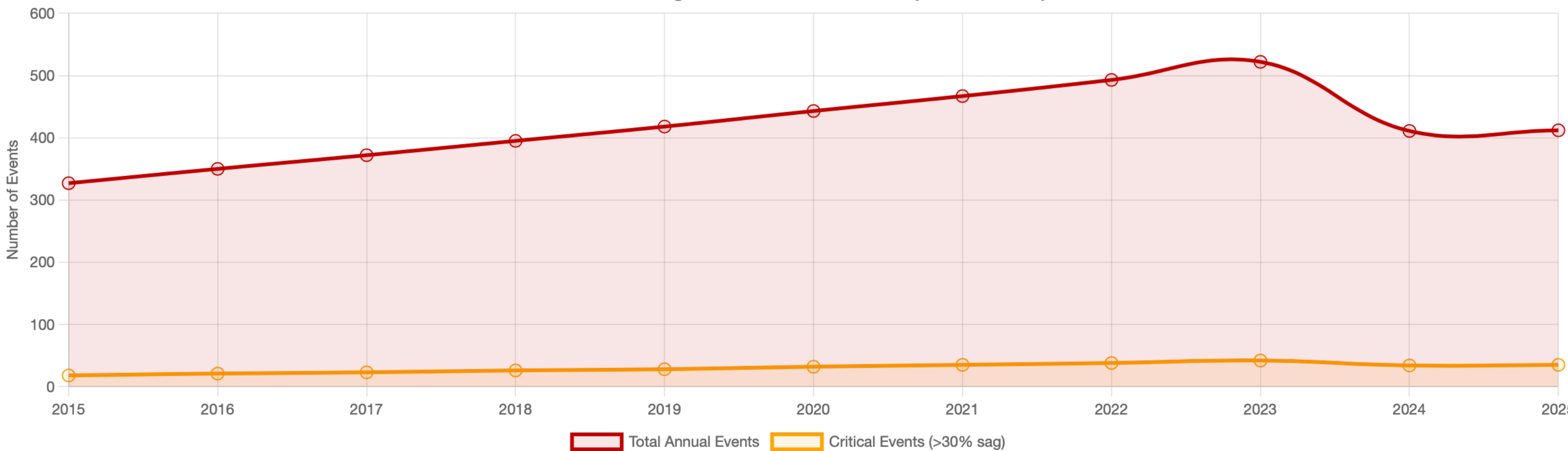
⚡ Energy Waste Breakdown

🔍 Equipment Risk Assessment

🌍 Carbon Footprint

BATELEC Voltage Events Trend (2015-2025)

BATELEC Voltage Events: 10-Year Trend (+7.1% CAGR)



📈 **Trend Analysis:** Despite infrastructure improvements including the 500kV Balsik-Marilao line (2024), voltage events show persistent upward trend at +7.1% CAGR. This is driven by load growth (6.8% CAGR), climate change impacts (+2.3% severe weather), and infrastructure aging across all Philippine grid regions.