GRID COMPLIANCE STUDIES

Unified Data Collection Checklist

ENERZIX

What is this form?

This short checklist helps our engineers understand your electrical system so we can design the right power study for your site. Fill in as much as you can, partial information is always helpful.

- Estimates are fine, note them as 'approx.'
- Attach any existing drawings, bills, or equipment lists you have.
- Our engineer will follow up if anything needs clarification.

Your Contact Details

Company / Organization: _____

Site Name & Address: _____

Your Name & Role : _____

Email Address : _____

Phone Number: _____ _

Date Completed: _____

A. SITE & SUPPLY OVERVIEW

Industry / Sector	*e.g. Oil & Gas, Hospital, Commercial*	**Facility Description**	*e.g. Manufacturing plant, data center*
Operating Hours	*e.g. 24/7 / Mon–Fri 8am–6pm*	**Is supply critical?**	*Yes / No tolerate short interruptions?*
Utility / Grid Supplier	*e.g. TNEB, National Grid, ESKOM*	**Supply Voltage at Site**	*e.g. 11 kV, 33 kV, 415 V*
No. of Incoming Feeders	*e.g. 1 main, 2 independent*	**Applicable Grid Code / Standard**	*e.g. IEEE 519, IEC, local utility spec*
Paying Power Factor Penalty?	*Yes / No / Not sure*	**Tariff / Contract Type**	*e.g. HT-1, Industrial, Time-of-Use*
Approx. Monthly kWh	*e.g. 250,000 kWh/month*	**Peak Demand (kVA or kW)**	*e.g. 850 kW from utility bill*
Target / Required Power Factor	*e.g. 0.95 lagging (utility requirement)*	**Harmonic Limit Applied**	*e.g. IEEE 519 / utility-specific / unknown*

B. TRANSFORMERS (Provide SLD if available)

Tag / Name	KVA Rating	Primary KV	Secondary V	Year / Age	Notes
e.g. TR-01 Main					

Any OLTC (On-Load Tap Changers)?	*Yes / No / Not sure*	**Transformers dedicated to VFDs/furnaces?**	*Yes / No — describe below*
Additional transformer notes	*e.g. One transformer feeds compressor room only...*		

C. ELECTRICAL LOADS

Total Installed Load (kW)	*Sum of all nameplate ratings*	**Normal Operating Load (kW)**	*Typical daytime running load*
Peak Demand Observed (kW)	*Highest reading you have seen*	**Off-Peak / Night Load (kW)**	*Lowest you observe*
Future Load Growth (%/yr or kW)	*e.g. +10%/yr new compressors in 2026*	**Any Large Motors (>100 kW)?**	*Yes / No list below if yes*
Planned new equipment or expansion	*e.g. 2 × 250 kW compressors 2026, new EV chargers, expanded HVAC...*		

Variable Speed Drives (VFDs) / Inverters / UPS / Rectifiers / EV Chargers list all non-linear loads

These are the primary source of harmonic distortion. Even approximate data helps. Drive type (6-pulse, 12-pulse, AFE) is on the nameplate if unsure, provide brand & model.

Equipment / Application	Brand & Model	kW Rating	Drive Type	Qty	Location
e.g. Cooling Tower Fan		*75 kW*	*6-pulse*	*2*	*Roof plant room*

D. POWER FACTOR CORRECTION & ON-SITE GENERATION

Capacitor Banks / APFC Installed?	*Yes / No / Not sure*	**Type**	*Fixed / Automatic (APFC)*
Total Capacitor Rating (KVAR)	*e.g. 600 KVAR total*	**Number of Steps / Stages**	*e.g. 6 steps × 100 KVAR*
Detuning Reactors Fitted?	*Yes / No / Not sure*	**Capacitor Bank Age**	*e.g. Installed 2010*

Capacitors ever tripped / failed?	*Yes / No describe below*	**Any SVG / SVC / Active Filter?**	*Yes / No / Brand & rating*
Notes on PF correction (trips, fuse issues, problems)	*e.g. Panel trips Monday mornings when production starts, replaced fuses twice...*		
Solar PV Installed / Planned?	*Yes / Planned (year) / No*	**Solar Capacity (kWp DC)**	*e.g. 500 kWp*
Solar Inverter Brand / Model	*e.g. SMA Sunny Tripower, Sungrow*	**Solar Exports to Grid?**	*Full export / Limited / Self-consumption only*
Standby / Prime Generator?	*Yes-standby / Yes-parallel with grid / No*	**Generator Capacity (kVA)**	*e.g. 2 × 500 kVA*
Battery Storage (BESS) Installed/Planned?	*Yes / Planned / No*	**Battery Capacity (kWh)**	*e.g. 500 kWh*

E. PROBLEMS & SYMPTOMS OBSERVED

Tick everything you have experienced even if it seems minor or unrelated:

- ☐ High electricity bills / unexpected increases
- ☐ Power factor penalty charges on utility bill
- ☐ Equipment tripping / shutting down unexpectedly
- ☐ Motors or transformers running hot / overheating
- ☐ Flickering lights (especially when large equipment starts)
- ☐ Voltage dips or sags lights dim momentarily
- ☐ UPS alarming or switching to battery unexpectedly
- ☐ Capacitor bank tripping, blowing fuses, or damage
- ☐ VFD / inverter drives faulting or failing early
- ☐ Sensitive equipment (PLC, instruments) malfunctioning
- ☐ Communication / signal interference on cables
- ☐ Transformer humming louder than normal / vibrating
- ☐ Production stoppages caused by electrical issues
- ☐ Utility has raised concerns or issued a written notice
- ☐ Failed electrical audit / inspection finding
- ☐ Other, describe below

Describe problems in your own words	*What happens, when it happens, how often, which equipment is affected...*		
When did problems first start?	*e.g. After new VFDs in 2022 / Always been an issue*	**How often?**	*e.g. Daily / Weekly / Random / Peak production only*
Production loss or downtime caused?	*Yes, describe / No / Minor impact*	**Estimated financial impact (per year)**	*e.g. USD 50,000 lost production / Hard to estimate*

F. EXISTING DATA & DOCUMENTS (tick what you can share)

- ☐ Single Line Diagram (SLD) even an old one
- ☐ Electricity bills last 6–12 months
- ☐ Load list or equipment schedule
- ☐ Transformer nameplates / test certificates
- ☐ VFD / UPS technical datasheets or manuals
- ☐ Previous electrical study or audit report
- ☐ Power quality measurement report
- ☐ SCADA / BMS energy & demand data
- ☐ Fault logs from protection relays / breakers
- ☐ Capacitor bank / APFC panel datasheet
- ☐ Generator / DG set datasheet
- ☐ Solar PV / inverter documents
- ☐ Photographs of main switchboard / MCC
- ☐ Cable schedule or routing drawings

Existing Site Measurements (leave blank if no data)

Measurement	Value (if known)	Location	Date
Power Factor			
Voltage (L-L)			
Current (A)			
Voltage THD %			
Current THD %			
Peak Demand (kW/kVA)			

G. YOUR OBJECTIVES & STUDY SCOPE

Tick your top priorities:

- ☐ Reduce electricity bill
- ☐ Stop equipment tripping / unexpected shutdowns
- ☐ Comply with utility or grid code requirement
- ☐ Connect a new large load or expand the site
- ☐ Understand root cause of electrical problems
- ☐ Prepare for electrical audit / inspection
- ☐ Eliminate power factor penalty charges
- ☐ Reduce motor / transformer overheating
- ☐ Connect new renewable energy (solar / wind)
- ☐ Improve overall reliability and uptime
- ☐ Extend equipment lifespan, reduce maintenance
- ☐ Other, describe below

Most important goal for this engagement	*What does a successful outcome look like for you?*		
Project completion timeline	*e.g. Utility compliance deadline 3 months / No specific deadline*	**Utility written notice / requirement?**	*Yes attach letter / No*
Study needed for permit / tender / approval?	*Yes, describe / No*		
Any other requirements or context	*e.g. Sensitive process line that cannot be disrupted, noise complaint, insurance requirement...*		

COMPANY NAME

Full Name: _____
Signature: _____
Date: _____

What Happens Next

Our engineer will review your form shortly and contact you.