

ELECTRICAL ENGINEERING FOR INDUSTRY IN MEXICO & LATAM

POWER CONTINUITY FOR INDUSTRY IN MEXICO & LATAM

Diagnostics, storage, on-site generation, electrical infrastructure and e-mobility for plants on medium voltage from 1 MW or on high voltage.

WE MEASURE FIRST. THEN WE PROPOSE.

Diagnostics and Quality

Metering, harmonics and power factor



Storage and Backup

BESS batteries and backup generators



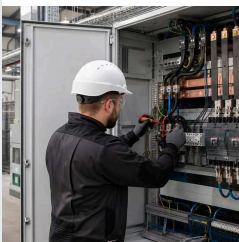
On-site Generation

Solar panels and cogeneration



Electrical Infrastructure

Substations and medium voltage



E-mobility

Fleet charging and charging stations



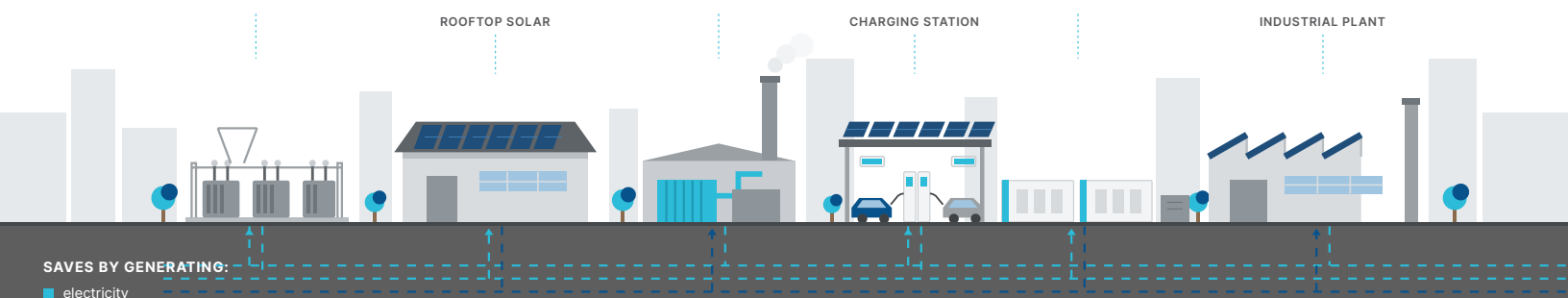
GTO Vigía

Operation and maintenance



WHO WE ARE

GTO Energy CO has operated since 2019 in León, within a group whose lineage in critical infrastructure and cogeneration goes back to 1983. **We measure, design, build and operate** energy systems for industry in northern, central and southern Mexico, and LATAM.



SAVES BY GENERATING:

■ electricity

1983

ESI TECHNOLOGIES

Tampa, Florida. Origin of the group's critical-infrastructure lineage.

2001

PMI

Power Management International; in Mexico since 2004. Data centers and the group's first cogeneration plants.

2014

GIS POWER

Cogeneration, solar, storage and microgrids; projects that require a generation permit.

2019

GTO ENERGY CO

León, Guanajuato. Diagnostics, storage, generation and infrastructure inside your plant.

HOW WE WORK

ONE ACCOUNTABLE PARTNER, FROM METERING TO OPERATION



We measure

Seven-day campaign with a Class A analyzer.



We design

Engineering based on your real load curve.



We build

Supply and installation inside your fence line.



We operate

GTO Vigía sustains the result after construction.

Above 0.7 MW, or when a project requires a generation permit, it is developed by GIS Power, from the same group: it is a split of who signs the permit within the group, not a limit on what the group does.

SOLUTIONS

FIVE FAMILIES, ONE FRONT DOOR



DIAGNOSTICS AND QUALITY

Class A metering, harmonics, power factor and the Mexican Grid Code.

P. 03



STORAGE

Batteries to shave peak demand and back up the plant during outages.

P. 05



ON-SITE GENERATION

Solar and cogeneration, sized on metered data.

P. 07



INFRASTRUCTURE

Substations, load increases and medium voltage.

P. 09



E-MOBILITY

Charging infrastructure sized to the real capacity of your grid connection.

P. 11



GTO VIGÍA

Monitoring, monthly reporting and priority service.

P. 13

FAMILY A · THE FRONT DOOR

BEFORE WE SELL YOU ANYTHING, WE MEASURE

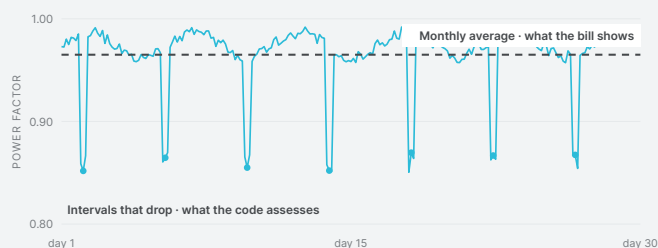
We install Class A equipment at your facility for seven days and leave with your real load curve, your harmonic profile and your compliance status against the Grid Code (Código de Red).

THE PROBLEM

Your bill shows an average. The code is assessed by interval.

Most suppliers arrive with a proposal before measuring anything: they quote a capacitor bank without knowing whether your problem is reactive or harmonic, and sell you panels without seeing what time your peak occurs. The CFE bill shows the average power factor for the period. The Grid Code is verified on short-interval measurements and is met when the value holds for almost the whole month. A plant with a good average and motor starts that pull it down every shift can be out of compliance without the bill hinting at it.

Measuring is the only way to know which case is yours.



Illustrative. The required value and share of time are confirmed against the load-center connection regulatory manual (Manual Regulatorio de Conexión de Centros de Carga).

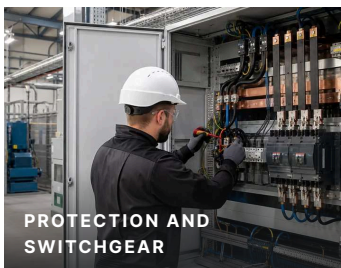
WHAT WE MEASURE ON SITE



POINT OF CONNECTION



METERING AT SWITCHBOARDS



PROTECTION AND SWITCHGEAR



THERMOGRAPHY OF CONNECTIONS

THREE LINES, ONE MEASUREMENT

The seven-day campaign feeds all three: the diagnostic, the compliance report and the correction plan come out of a single measurement.

A.1 · DIAGNOSTICS  Investment-Grade Diagnostic Adjusted baseline, measurement and verification under IPMVP, and payback calculated measure by measure. No down payment, and creditable against your investment.	A.2 · COMPLIANCE  Grid Code Compliance study and report on the eight parameters the code requires, not three.	A.3 · QUALITY  Power Quality Power factor correction, harmonic filters, resonance study, sag mitigation and thermography.
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Also in this family: Work Plan filed with the authority · protection coordination · grounding · transient surge protection · shielding, lightning rods and storm detectors · analyzers with online supervision.

THE EIGHT PARAMETERS OF THE GRID CODE

 01 Voltage Levels and regulation at the point of connection.	 02 Voltage transients Sags and overvoltages that affect process control.	 03 Frequency How the installation responds to system deviations.	 04 Short circuit Fault currents and the interrupting capacity of the equipment.
 05 Protection coordination The right breaker trips, not the one upstream.	 06 Power factor Measured and corrected at the point of connection, not estimated from the bill.	 07 Power quality Current and voltage harmonic distortion within limits.	 08 Information exchange Signals and communication with the system operator.

FAMILY FACT SHEET

WHO IT APPLIES TO Medium voltage from 1 MW, or high voltage	INSTRUMENTATION Class A · IEC 61000-4-30	CAMPAIGN 7 days calendar minimum
TIMELINE 2 to 14 weeks depending on the line	DELIVERABLE Baseline, M&V plan under IPMVP and payback per measure	FIRST STEP Initial review: a short meeting with your bill on screen

WHEN IT IS NOT FOR YOU

There are plants we do not sell a study to

- 01 On low voltage and with no power factor surcharge, the Grid Code does not apply to you and metering costs more than it saves.
- 02 With an installation under two years old, complete drawings and no load growth, you are most likely fine. We tell you before we charge for it.
- 03 If you only need the compliance report to file it, that is a shorter and cheaper scope than an investment-grade diagnostic.

Details, FAQs and the full Grid Code on the website.

EXPLORE THE FAMILY



FAMILY B · THE FLAGSHIP LINE

WE CUT THE PEAK BILLED BY CFE

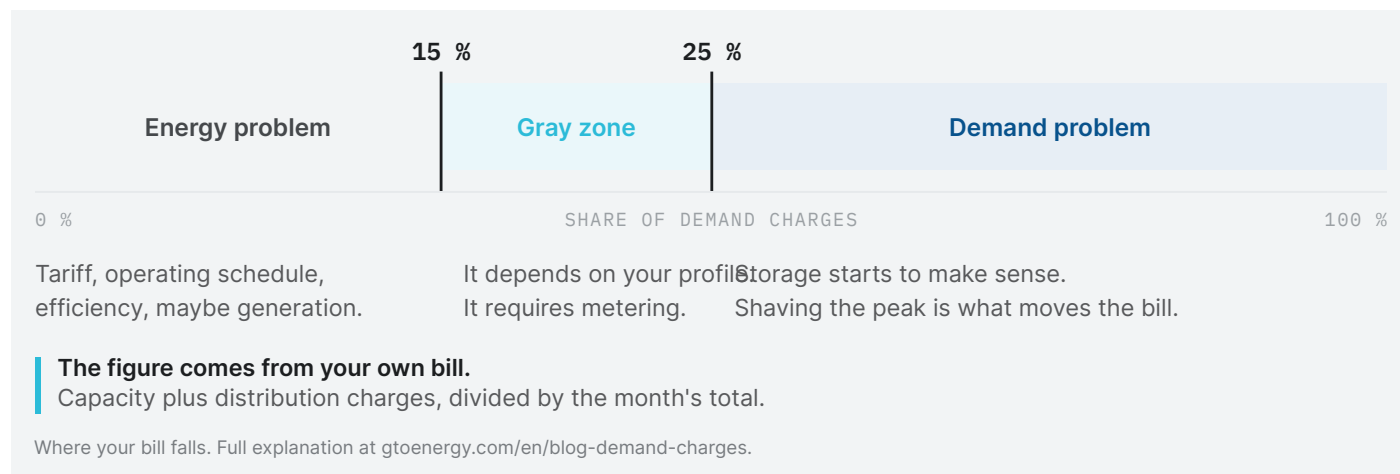
Behind-the-meter storage to manage demand charges, keep the process running and defer a service upgrade.

THE PROBLEM

Peak demand is billed even if it lasted fifteen minutes

On the GDMTH tariff you pay three different prices depending on the hour, plus the peak demand recorded in the month. A simultaneous fifteen-minute start sets the charge for all thirty days. It is not consumption: it is the peak.

And when the grid in your area is saturated, new capacity cannot be bought: you wait for it. Storage solves both with the same asset: it shaves the billable peak by charging off-peak and discharging on-peak, and keeps the process running when the grid fails.



THREE NUMBERS DECIDE WHETHER STORAGE PAYS OFF

> 25 %

Demand charges in your bill

Capacity plus distribution, over the total. Without this number there is no case for storage.

150,000

kWh per month, at least

That is the size at which the project pays for its own engineering.

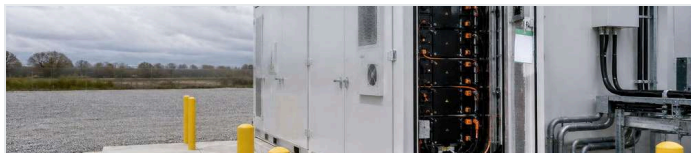
\$ / h

A known cost per hour of downtime

If you know what an hour of downtime costs you, backup becomes a comparison of numbers.

STORAGE IS THE FLAGSHIP LINE

It is not a solar add-on: it is the asset that decides whether your bill goes down and whether your process stops.



B.1 · STORAGE

BESS Storage

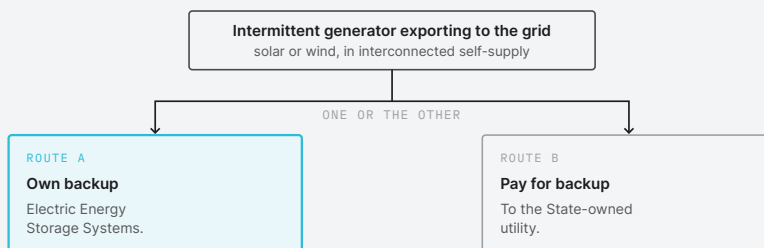
Peak demand shaving, backup during grid outages, deferral of a service upgrade and hybridization with existing or new solar. Lithium batteries behind the meter.



B.2 · BACKUP

Backup Generators

Fuel-based backup for critical loads and for compliance with article 32 of the Electricity Sector Law (Ley del Sector Eléctrico). Sized on the real critical load, not on total demand.



The third condition of section III.

The other two: a valid generation permit and interconnection contract, and sales exclusively to the State-owned utility.

Sizing correctly is the real work: batteries for the billable peak and seamless transfer, a generator for the long outage; the answer is often a combination. Backup for intermittent generation: gtoenergy.com/en/blog-backup-article-32.

FAMILY FACT SHEET

CONSUMPTION From 150,000 kWh per month	BILLING Demand above 25 % of the bill	WHAT WE ASSESS 12 months of load profile and billing
TIMELINE 4 to 9 months	PERMITS Interconnection and registration depending on capacity and scheme	OPERATION Under a GTO Vigía reliability contract

WHEN IT IS NOT FOR YOU

Without on-peak spikes, a battery bank does not pay off

- 01 If your load is flat around the clock and demand is a small share of your bill, storage has nowhere to find savings. We will not quote it.
- 02 Well below 150,000 kWh per month, it is better to adjust your contracted demand and correct the power factor first.
- 03 For pure backup of a small critical load, a backup generator costs a fraction of a BESS.

Load profile, sizing and backup on the website.

EXPLORE THE FAMILY



FAMILY C · ON-SITE GENERATION

THE DECISION IS WHAT YOU DO WHEN THERE IS NO SUN

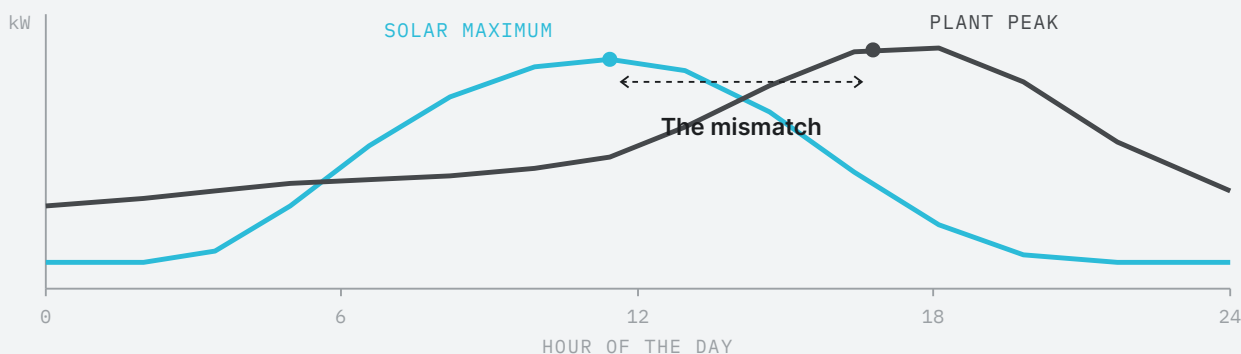
Solar PV and gas-engine cogeneration, both as distributed generation, sized on your metered load profile.

THE PROBLEM

Your demand peak happens when solar output is zero

The most common mistake in an industrial solar project is sizing it against annual consumption. That gives a big number and an attractive proposal, and also a system that produces at noon while the billable peak happens at seven in the evening.

The result is a bill that drops less than promised and a demand charge that did not move. It is not the panels' fault: it is designing without measuring. Cogeneration solves something else: it recovers heat from a fuel the plant is already buying.



Your system produces at noon. Your plant is billed for the evening peak.
Illustrative curves: yours is measured, not assumed.

Illustrative curves. Full explanation at gtoenergy.com/en/blog-sizing-solar.



ROOFTOP SOLAR



PV ARRAY

TWO WAYS TO GENERATE, FOR TWO DIFFERENT PROBLEMS

Solar lowers the cost of daytime energy. Cogeneration makes use of a fuel you are already buying. They do not compete: you choose by your plant's thermal profile.



C.1 · SOLAR

Solar Generation

Commercial and industrial distributed-generation systems: engineering, supply, racking, electromechanical work and commissioning, with a baseline before energizing.



C.2 · COGENERATION

Distributed Cogeneration

Electricity and useful heat from the same fuel, with a gas engine, for plants with continuous thermal demand. Thermal engineering is handled with specialized partner firms.



C.3 · HYBRIDIZATION

Solar + Storage

Storage turns midday generation into on-peak savings. They are sized together or they are not sized right.

WHAT TO CHECK BEFORE SIZING



01

Area and orientation

Roof, parking lot or ground. Orientation and shading define what it will really produce.



02

What time your peak happens

If it is at night, solar alone does not touch it: it decides whether storage is needed.



03

Boiler running over 6,000 h a year

The practical threshold for cogeneration: without continuous thermal demand there is no heat to recover.



04

What you do with heat today

Hot water, steam or chilled water by absorption. Much of the payback depends on it.

FAMILY FACT SHEET

SOLAR

Exempt generation, below 0.7 MW

COGENERATION

Boiler running over 6,000 h per year

RECOVERABLE HEAT

Cooling 70–90 °C · exhaust 400–500 °C

TIMELINE

3 to 14 months

PERMITS

Distributed-generation interconnection

OPERATION

Under a GTO Vigía reliability contract

WHEN IT IS NOT FOR YOU

Sometimes on-site generation is not right yet

01 Without continuous thermal demand there is no cogeneration: with no useful heat to recover, a gas engine is just expensive electricity.

02 With a power factor below 0.97 or high harmonic distortion, fixing that costs a fraction of a solar project and pays back faster.

03 If your roof has less than five years of useful life left, it has to be costed before signing, not after.

Solar, cogeneration and hybridization on the website.

EXPLORE THE FAMILY



FAMILY D · INFRASTRUCTURE

THE SOLUTION IS INSIDE YOUR FENCE LINE

Substations, load increases, service upgrades, electromechanical installation and medium-voltage maintenance, including live-line work.

THE PROBLEM

The capacity your production needs cannot always be bought

When the local grid is saturated, a service upgrade stops being paperwork and becomes a date in someone else's hands. Meanwhile there is work that can be done inside the fence line: adjusting contracted demand, fixing an installation that grew piecemeal or deferring the upgrade with storage.

And there is a silent cost nobody bills until it fails: the plant that paid for a substation fifteen years ago, hung three expansions on it, and today has no drawing that reflects what is installed.

FOUR SITUATIONS THAT BRING A PLANT TO THIS FAMILY



01

You exceed your contracted demand

If in any month metered demand exceeded the contracted one, you are already overpaying and may be at the thermal limit.



02

New load and no capacity

A line, a furnace or a data center the current service cannot carry.



03

No up-to-date drawings

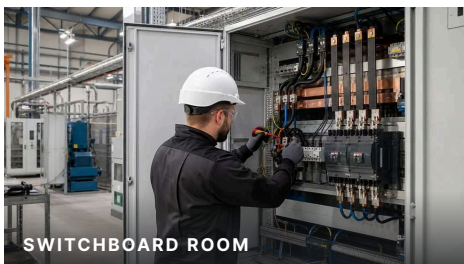
The installation grew piecemeal. It is the starting point for almost everything else.



04

The process cannot stop

Some medium-voltage maintenance is done with the line energized.



SWITCHBOARD ROOM



MEDIUM-VOLTAGE SWITCHING



SERVICE ENTRANCE AND METERING

ONE ACCOUNTABLE PARTNER FOR THE ELECTRICAL WORK

From the survey and design calculations to the finished work and updated drawings, without splitting responsibility among three contractors and a designer.

D.1 · INFRASTRUCTURE



Substations and Load Increases

Service entrances, substations, internal medium and low-voltage distribution, surveys, design calculations and drawings.

D.2 · MAINTENANCE



Medium Voltage and Live-Line Work

Predictive, preventive and corrective maintenance of substations, transformers, breakers, motors and drives, also without interrupting supply.

D.3 · TESTING



Predictive and Preventive Testing

Thermography, load balancing, oil chromatography, insulation resistance (Megger) and motor testing, with recommendations.

HOW IT IS DELIVERED



Survey

on site, with or without construction



Design calculations
and detailed engineering



Filing with CFE

service upgrade or load increase



Construction and testing

civil, electromechanical, installation



Drawings and records and maintenance contract

The survey is the first deliverable and is quoted separately: it comes with updated drawings and design calculations, and it is just as useful if someone else does the work.

FAMILY FACT SHEET

WHO IT APPLIES TO

Plants that need new capacity or whose installation no longer matches their load

VOLTAGE LEVELS

Medium and low voltage

LIVE WORK

Maintenance without interrupting supply

TIMELINE

1 to 18 months depending on scope

DELIVERABLE

Finished work, updated drawings and test records

OPERATION

Scheduled maintenance contract

WHEN IT IS NOT FOR YOU

A new substation is not always the answer

01 If your metered demand is well below the contracted one, the first step is adjusting the contract. It costs no construction and lowers the bill the next month.

02 If the need is peak capacity for a few hours a day, a battery bank can defer the upgrade for much less money.

03 Above 0.7 MW with a generation permit, GIS Power, from the same group, develops it, and we stay at the table.

Substations, medium voltage and live-line work on the website.

EXPLORE THE FAMILY



FAMILY E · E-MOBILITY

THE CHARGER IS THE EASY PART. WHAT DECIDES IS THE GRID

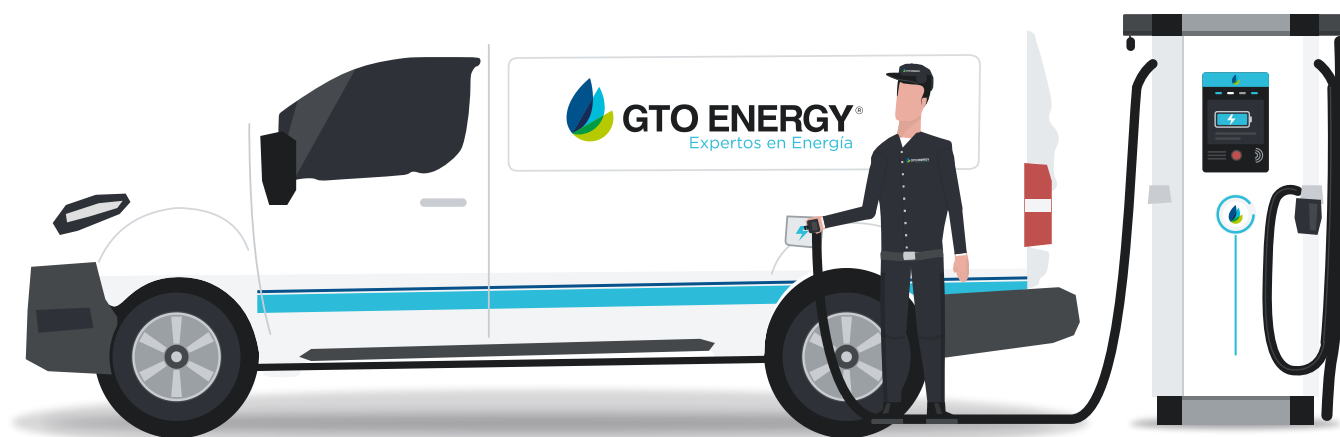
Electrical engineering to charge electric vehicles inside your plant or as a business: available capacity, load management, substation, protection and operation.

THE PROBLEM

A charger is a new load that arrives all at once

An electric vehicle draws its full power as soon as it plugs in and holds it for hours. If the fleet arrives at the same time and every charger starts together, the sum hits your meter at once: ten 22 kW chargers add up to 220 kW (illustrative example).

On the GDMTH tariff that demand goes into the month's capacity and distribution charges. And before the bill comes the physical question: whether the transformer and the service have headroom. When they do not, the real project is the substation, the load increase or a battery bank that shaves the peak.



FOUR DIFFERENT CASES, THE SAME CAPACITY QUESTION

The vehicle, the schedule and the charger size change. What does not change is that everything is sized against your facility's metered load curve.



E.1 · FLEETS

Fleet Charging

Delivery vans and utility vehicles that charge overnight, staggered, without setting a new demand peak. Includes forklift charging as a separate installation.



E.2 · EMPLOYEES

Employee Mobility at the Plant

Employee shuttle buses and staff parking, with load management and per-user metering.



E.3 · TRUCKS

Electric Truck Charging

DC fast charging for tractor-trailers in the yard. The real project is medium voltage.



E.4 · BUSINESS

Charging Stations as a Business

Point-of-connection feasibility, sizing, billing model, permits, construction and operation for those who want to sell charging to the public.

THREE QUESTIONS BEFORE TALKING ABOUT CHARGERS



01

How many vehicles, and when

The fleet's real arrival and departure times define the power needed.



02

How much headroom your transformer has

It is measured, not assumed: how many kW are free in each hour.



03

How much demand weighs on your bill

On GDMTH, charging is scheduled so it does not move the demand register.

FAMILY FACT SHEET

WHO IT APPLIES TO

Plants, distribution centers, logistics yards and public-charging investors

WHAT WE ASSESS

Metered load curve, transformer, service and fleet schedules

WHAT DECIDES

The capacity available at the point of connection, not the number of chargers

APPLICABLE FRAMEWORK

NOM-001-SEDE-2012 art. 625 · Agreement A/108/2024

PERMITS

Load increase or new connection and, if you sell energy, the filing with the regulator

OPERATION

Under a GTO Vigía contract

WHEN IT IS NOT FOR YOU

If the load fits in what you already have, there is no project

01 With a few vehicles and short routes, a wall charger on an existing circuit may be enough. We will not quote you a substation.

02 If your fleet is not decided yet, it is better to wait: the charger depends on the vehicle, the route and the schedule.

03 A public charging station is not built yet without verifying the point-of-connection capacity and the traffic.

Fleets, employees, trucks and charging stations on the website.

EXPLORE THE FAMILY



GTO VIGÍA · RELIABILITY CONTRACT

WHAT WAS MEASURED ONCE DEGRADES IN SILENCE

An annual reliability contract, not a per-event visit. It sustains the result of all five families after construction, and also services systems someone else installed.

WHAT IT COVERS



Power factor and Grid Code

Real status measured by interval, not by average.



Scheduled thermography

A hot spot shows up months before it burns.



Protection coordination

Reviewed against the real installation when the plant grows.



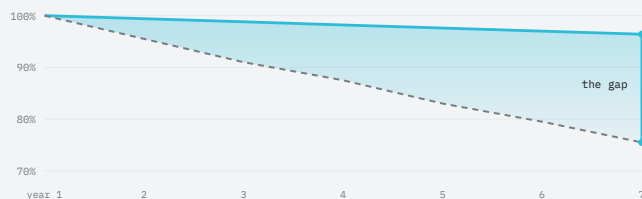
Generation and assets

Solar, batteries and generators against what was committed.



Priority service

Response time is in the contract.



— With maintenance: module degradation only — Without maintenance

Illustrative curves. Natural module degradation is covered by the manufacturer's warranty; the gap that opens below it is not. What the contract buys is the distance between the two.

We do not report activities

Every report answers one question: did your installation deliver what it had to this period? And if not, why, what is done, by whom and when.

We service installations built by others

We start with a condition survey: what was installed, what state it is in and how much generation is lost today. We do not ask you to switch suppliers: we measure and hand you the result.

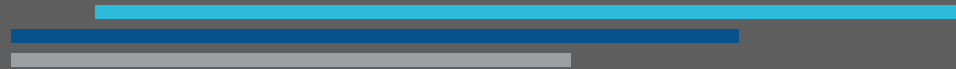
SCOPE BY LEVEL	ESSENTIAL	ACTIVE	TOTAL
Visual and electrical inspection	Annual	Every six months	Quarterly
Power factor and Grid Code report	Quarterly	Monthly	Monthly with alerts
Switchboard thermography	—	Annual	Every six months
Protection coordination review	—	Annual	Annual and at every load change
Backup load test	—	Every six months	Quarterly
Fault response	Quoted separately	Committed response	Committed response and critical spare parts

Response times and the price of each level are set in the proposal. This table is the structure of the service, not the price list.

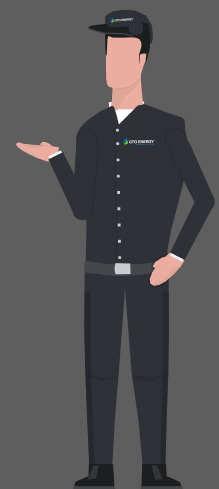
CLIENTS

ENERGY IS WHAT WE DO

We want to be your long-term energy partner. Some of the companies that have trusted the group:



...and many more



LET'S START

LET'S START WITH AN INITIAL REVIEW

In a short meeting we review your bill with you, on screen, and tell you what is worth measuring. We work with plants on medium and high voltage.



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MESSAGE US ON WHATSAPP



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