



Laborelec
RESEARCH & INNOVATION

ENGIE LABORELEC SOLAR LAB INDEPENDENT EXPERTISE FOR UTILITY-SCALE SOLAR

From subsystem precision to asset-wide insight



SERVICE OVERVIEW

ENGIE Laborelec Solar Lab delivers high-impact technical expertise across the full lifecycle of utility-scale PV assets. We bring together deep subsystem know-how with dedicated laboratories — from modules and cables to trackers and ITS — with holistic, asset-wide diagnostics to help asset owners, investors, and operators maximize yield, minimize risk, and extend value.

We are not an EPC or consultant. We are your trusted partner for objective, data-backed decisions, grounded in real-world performance, proven field diagnostics, and advanced lab capabilities.

WHAT WE OFFER

ASSET-LEVEL EXPERTISE – FROM DESIGN TO REPOWERING

Development & Design Phase

- **Resource & Site Assessment** – Precision irradiance, albedo, wind & soiling measurements, with validated bankable resource files
- **Design Validation** – Independent verification of trackers, foundations, and electrical systems under site-specific constraints
- **BoM Optimization** – Objective reviews of modules, inverters, structures, corrosion risk mitigation strategies and general asset ageing management strategies
- **Design Optimization & Hybridization** – Technical trade-offs to optimize LCOE/NPV, including PV + BESS and H₂ integrations

Operational & Lifecycle Phase

- **Fleet Diagnostics** – Rapid screening to identify and prioritize underperformance with minimal data.
- **TrueYield™** – Quantification of energy losses from P50 to injected energy using our trusted Digital Twin.
- **Lifetime Extension & Repowering** – Data-driven end-of-life decision-making, powered by our PVOps platform.

SUBSYSTEM-SPECIFIC TECHNICAL EXPERTISE

- **PV Modules** – RCA, EL/IR imaging, IV curve tracing, degradation studies and PID mitigation
- **Trackers & Foundations** – RCA, Wind load verification, corrosion (mitigation) studies, concrete ageing diagnostics (destructive and non-destructive), concrete rehab strategies.
- **ITS & Transformers** – RCA, Control tuning, transformer oil diagnostics (OneBoard), HIL testing in our MW lab.
- **Connectors, Cables & Fuses** – RCA, Riso troubleshooting, insulation diagnostics, aging and lifetime analysis.
- **MV/HV Transformers & Switchgear** – RCA, Oil condition monitoring, unused oil testing, electrical diagnostics, lifetime fleet management.

HOW IT WORKS

We support you at every phase of the asset lifecycle:

- **Design Validation** – Before the first pile is driven.
- **Operational Insight** – From system-level diagnostics to component root cause, ageing management and recovery.
- **End-of-Life Strategy** – When repowering or lifetime extension becomes critical.

All of our work is conducted with full independence from OEMs, EPCs, and asset operators.

Our goal is simple: to tell you exactly how your system is performing, why it's not meeting its potential, and how to maximize both returns and end-of-life asset value—with objective, proven expertise.

TRUSTED GLOBALLY

ENGIE Laborelec Solar Lab is active on 4 continents, supporting over 4 GW of PV assets annual with objective technical expertise.

Trusted by: ENGIE, ACWA Power, Voltalia, Semptra Energy, ENEDIS, National Grid, IFC, EBRD, the European Commission, and many others.

WHY ENGIE LABORELEC?

- **Top-Tier Experts with a Duty of Care** – Laborelec brings together specialists at the highest level in their fields, combining deep technical knowledge with a strong sense of responsibility toward your asset's performance and longevity.
- **Subsystem to System-Wide Insight** – We find the hidden losses and show you how to quantify and recover them.
- **Lab-Proven, Field-Tested** – From MW-scale HIL testing to on-site RCA and asset recovery.
- **Lifecycle Focused** – From Day 1 to Year 30, we help secure your investment and maximize all revenue streams.

We provide high impact and quantifiable expertise on what works, what doesn't, and provide the tools and solutions to fix it. **ENGIE Laborelec Solar Lab** – From connection to injection, we've got your PV asset covered.



PV testbench in Atacama desert (Chile)

WOULD YOU LIKE TO KNOW MORE?

ENGIE Laborelec

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