



Light Up the World: Bringing Clean Energy and Internet Access to Remote Communities



Light Up the World (LUTW) is a Canadian nonprofit delivering solar energy and Internet to remote communities in Peru.

Website: lutw.org

Results

- Design time reduced from 1–2 days to 10 minutes;
- Systems optimized for cost and performance;
- Reinvested savings into offgrid computer lab

Through the Gurobi Gives Back program, a Canadian nonprofit empowers off-grid communities in Peru with optimized solar and digital infrastructure.

Light Up the World (LUTW) is a Canadian nonprofit bringing clean energy and Internet access to remote communities across Peru. Founded in 1997 by Dr. Dave Irvine-Halliday, LUTW has evolved from hand-assembling solar-powered LED lights in a university lab to delivering full-scale solar and satellite Internet systems to rural schools, clinics, and community centers. These efforts are transforming off-grid regions into vibrant hubs of opportunity and learning.

A Volunteer's Recommendation Leads to Gurobi

That all changed when LUTW discovered an open-source tool powered by the Gurobi Optimizer. Introduced by a university student volunteer, the tool was originally developed for academic research and used Gurobi's solver to generate optimal solar system configurations.

Through the Gurobi Gives Back program, LUTW was able to secure a sponsored license to use the solver—providing them with a robust, professional-grade optimization engine tailored to their unique mission.

Designing for the Underserved — with No Room for Error

Building solar systems for remote areas comes with unique challenges. With no access to historical usage data, every energy system must be designed from scratch. Transportation is complex, budgets are limited, and there's little room for error.

Prior to using optimization, LUTW's engineers relied on Excel-based back testing and manual calculations—a time-consuming process that could take days and potentially lead to oversized or inefficient systems.

Seamless Implementation, Big Efficiency Gains

The implementation was seamless. Even without a dedicated engineering or coding team, LUTW was able to quickly integrate Gurobi into its workflow. Designs that once took days to validate could now be optimized in under 10 minutes. This accelerated design cycle has dramatically increased LUTW's operational efficiency, enabling rapid prototyping and scenario analysis for each new installation.

“We're not just doing our work better, we're enabling other organizations to do their work better too.”

Aaron Cohen
Executive Director, LUTW



“With Gurobi, now that we have satellite Internet, I can input real usage data from the community and generate a fully optimized design that’s both technically sound and cost-effective.”

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“With Gurobi, now that we have satellite Internet, I can input real usage data from the community and generate a fully optimized design that’s both technically sound and cost-effective,” said Aaron Cohen, Executive Director at LUTW. “It gives us confidence that the systems we install are the best possible fit.”

From Optimization to Impact: A New Computer Lab in Huarcaya

The impact has been profound. In one recent project in the village of Huarcaya, LUTW used the savings generated by Gurobi’s optimized solar design to build a brand-new computer lab.

Previously, students in the village had little or no access to laptops. Now, thanks to the lab, children attend weekly classes where they learn about digital literacy, email, Google Drive, and basic internet navigation—skills essential for success in high school and beyond.

“In these communities, many kids have never touched a laptop before,” Cohen shared. “Now they’re getting weekly instruction from a teacher, and

learning the basics of technology we take for granted.”

Enabling Other NGOs to Do More

The benefits extend beyond individual communities. As a nonprofit, LUTW collaborates frequently with other NGOs in the region, many of whom need off-grid energy systems but don’t have the technical capacity to design them efficiently. With Gurobi, LUTW has been able to offer design services to these partners, delivering accurate, cost-effective solutions in hours, not days. This has positioned LUTW as a technical leader among Peruvian energy service providers, giving it a strategic edge and enabling broader impact.

Looking Ahead: Scaling Internationally

What’s next for Light Up the World? The team is planning international initiatives to areas with similar needs. As it scales, Gurobi will remain at the core of its design workflow, empowering LUTW to deliver reliable, optimized solar solutions that maximize every donor dollar and improve lives through access to power and technology.

LUTW’s impact is a powerful example of what’s possible when purpose-driven innovation meets the right tools. By combining deep community engagement with smart, data-driven decision making, Light Up the World is bringing lasting change to underserved regions. Gurobi is proud to support their mission through the Gurobi Gives Back program, helping to accelerate their efforts.

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