



Lumin Energy Management Platform Helps Right Size Storage While Delivering Significant Energy Savings in Puerto Rico

market

LOCATION San Juan, PR

UTILITY Puerto Rico Electric Power Authority (PREPA)

ENERGY COST \$0.24 / kWh

CUSTOMER Gabriel Perez

HOME TYPE Apartment

MONTHLY BILL \$160 - \$200

installation

HOME TYPE Small apartment

PANEL LOCATION Laundry room

of CIRCUITS 18

LUMIN CIRCUITS 5 dual pole
2 single pole

INSTALL TIME 2 hours

resiliency plan

In 2017 when hurricane Maria struck Puerto Rico, the entire island lost grid power. Mr. Perez, like many in San Juan, was without power for XX months. Lumin is part of his plan to bolster his home against future storms, enabling him to manage cost, set schedules and right size a home battery system. Lumin paired with storage enables off-grid living, optimizing energy storage.



OVERVIEW: Soaring energy costs with no end in sight

Largely due to its dependency on imported fossil fuels, residents of Puerto Rico have historically paid a premium for electricity. However, due to continued recovery efforts from Hurricane Maria, the current cost is nearly double what mainland residents of the United States pay for electricity. Further straining household incomes, rates are set to increase sharply in 2019 as part of a government bailout for bankrupt utility, PREPA.* According to the Institute for Energy Economics and

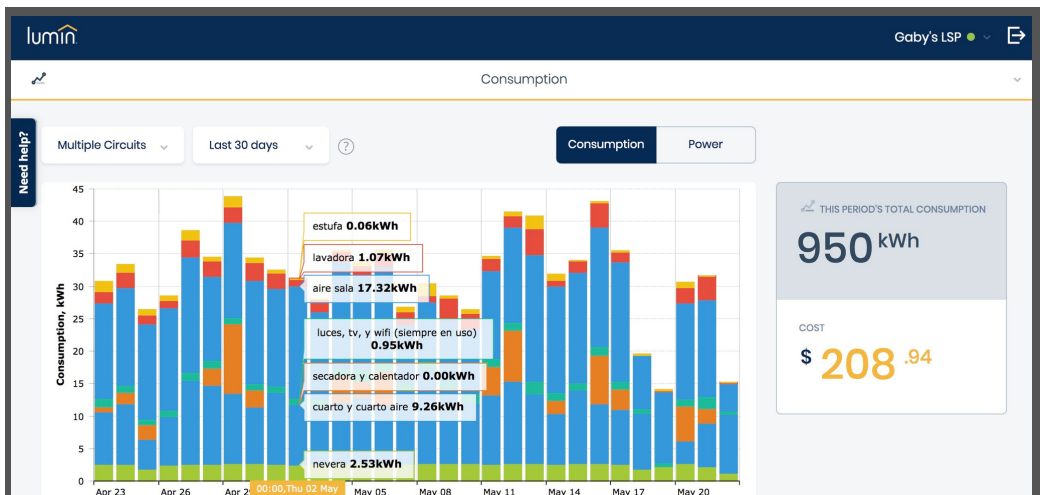


Financial Analysis (IEEFA), the average residential household in Puerto Rico, which uses about 400 kWh/month, the deal will result in a charge of more than \$130 per year in FY 2021, increasing to nearly \$220 per household per year in FY 2043.*

WHY LUMIN?

Mr. Perez has been in the energy efficiency field for more than 15 years. He loves innovation and new technology and upon seeing a demo of the Lumin Energy Management Platform, was curious. As a resident of San Juan, where energy prices are soaring, he was looking for energy savings. He plans to purchase a back up battery for his home and use Lumin's granular data to right-size his storage system.

"Would it be successful? Would it help me reduce energy cost?"



Lumin captures consumption data 10,000 times per second and pushes updates to the cloud every second for real time energy use reporting. This screen shot from Mr. Perez's app shows his energy consumption and cost by circuit for the past thirty days.

IMMEDIATE IMPRESSIONS of LUMIN PLATFORM

"I was impressed that the data is automatically and constantly flowing. Let's say I open the door of the fridge. I will notice that right away in the data! It gives me a keen understanding of what I'm wasting and what I'm consuming. The graph is super cool. It gives you a project...I need to change AC...It helps you be more efficient in your home."

*IEEFA.org

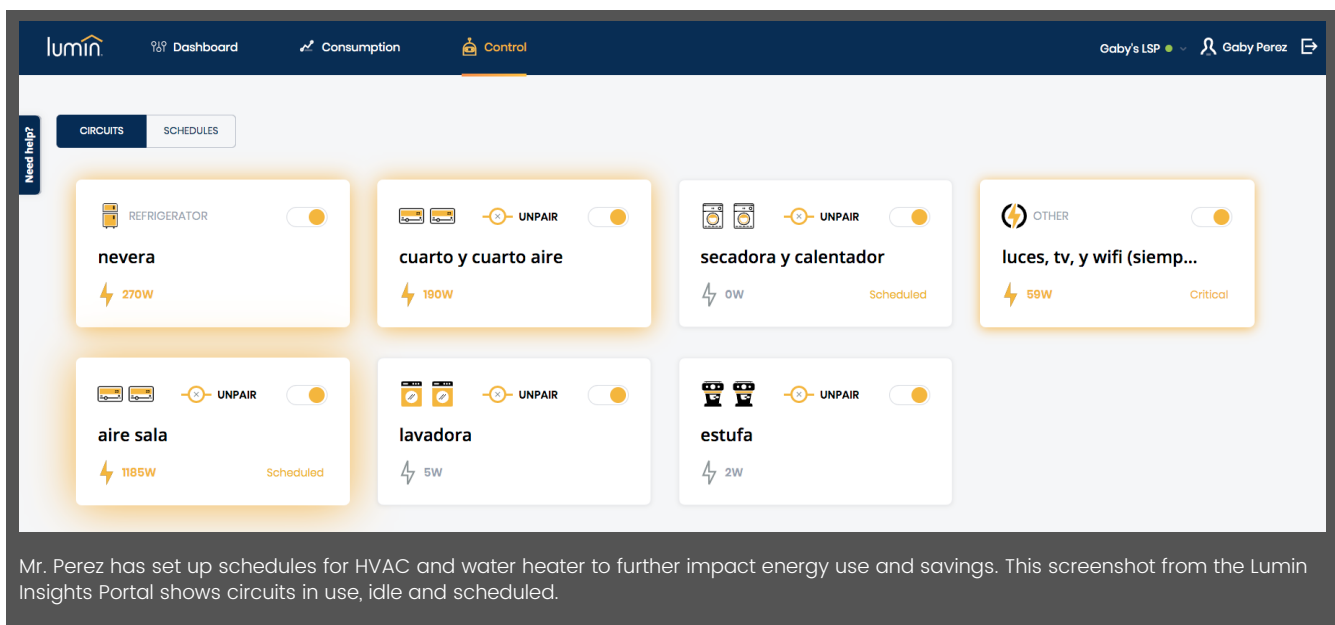


WHAT PROBLEM DOES LUMIN SOLVE?

Lumin is helping Mr. Perez save significantly on his power bill. Further, now that Mr. Perez better understands his daily energy consumption and the peak power draw of his major appliances, he is better suited to buy the right battery solution for backup and will avoid potentially over or under sizing a system for his family's needs – saving more money in process.

"The best way to save energy is to turn it off – but without Lumin we would not know the details or have the ability to set a schedule. Lumin enabled me to save significantly."

- Lumin Insights revealed immediately that AC accounts for half of the Perez's monthly energy use.
- He created a schedule for his AC to be off from 11pm – 6am.
- The AC runs 24/7 on an inverter and Mr. Perez wanted to determine if cutting back use would be worth the discomfort.
- In the first month, he saved \$50 on his energy bill and the impact on comfort was minimal. He added another schedule for the hot water heater to further manage consumption.

The screenshot shows the Lumin Insights Portal interface. At the top, there are navigation tabs for 'Dashboard', 'Consumption', and 'Control'. The user is logged in as 'Gaby Perez'. The main area is divided into 'CIRCUITS' and 'SCHEDULES'. Under 'CIRCUITS', there are seven cards representing different energy-consuming devices:

- REFRIGERATOR (nevera):** 270W, status: ON.
- cuarto y cuarto aire:** 190W, status: UNPAIR, ON.
- secadora y calentador:** 0W, status: UNPAIR, Scheduled.
- OTHER (luces, tv, y wifi (siemp...)):** 59W, status: ON, Critical.
- aire sala:** 1185W, status: UNPAIR, Scheduled.
- lavadora:** 5W, status: UNPAIR, ON.
- estufa:** 2W, status: UNPAIR, ON.

Mr. Perez has set up schedules for HVAC and water heater to further impact energy use and savings. This screenshot from the Lumin Insights Portal shows circuits in use, idle and scheduled.



NEW HABITS. SAFETY. PEACE OF MIND.

" Now that I have the solution, I am more conscious. The safety factor is excellent, my family love knowing we have this so we can use it from anywhere and we have peace of mind in case we leave something on. Thank God I have not used Lumin for that! "

- Mr. Perez now reviews his energy consumption each day and studies the Lumin Insights data to further refine his use of the new tech.
- Thankfully, the Perez family have not had to use Lumin in an emergency situation, but the peace of mind delivered with the platform has bolstered their home security.
- Mr. Perez says considering a costly energy storage system just got a little easier because of Lumin's very specific data. He now knows exactly the size battery he needs to make his home resilient and to be prepared for future natural disasters.