



ELEMENTAL
EXCELERATOR

INSIGHTS

University of Hawai'i Energy IoT Case Study

*The story of how Blue Pillar helped build the data backbone for the
University of Hawai'i's energy management strategy*

HONOLULU. HI

MEET BLUE PILLAR

Centralized energy IoT platform for single & multi-site facilities

Blue Pillar has developed an energy Internet of Things (IoT) platform for connecting and managing distributed energy resources (DERs) and energy consuming equipment.

 bluepillar.com

 Frederick, MD

 Cohort 5

 Established in 2006



Why partner with Blue Pillar?

“We know that good data is a foundation of our clean energy transition in Hawai'i and globally. Deploying new technology to get a handle on data, like UH has done in this project with Blue Pillar, helps local organizations manage their operations and costs. We expect this data will inform the business case for energy efficiency and renewable energy projects in the years ahead.”

Dawn Lippert, CEO, Elemental Excelerator

Why partner with Elemental Excelerator?

“Elemental Excelerator shares in the Blue Pillar vision of creating a safer, more resilient and self-sufficient energy eco-system. Partnering with them has enabled us to showcase our energy IoT network that will contribute to University of Hawaii's net zero goals.”

Tom Willie, CEO, Blue Pillar

THE CHALLENGE

If you're a multi-million dollar research enterprise spread across 200 acres and 300+ buildings, how do you tackle your energy usage?

The first step is to get control of your data.

Prior to this project, the University of Hawai'i had upgraded from analog meters to digital utility-grade meters. However, there was no way to centrally visualize, analyze, or store historical data. Facility managers physically visited each meter to perform manual readings, which resulted in inaccurate data and inefficient use of labor hours.



“One of the first steps in strategic energy management is getting control of your data. You cannot manage what you cannot measure.”

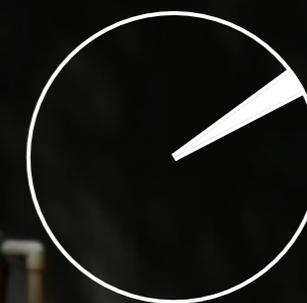
Miles Topping, UH Office of Energy Management



The University of Hawai'i is committed to becoming **net zero by 2035.**

This means that the university will need to produce as much renewable energy as it consumes across all campuses.

In 2017, it generated 5 GWh and consumed 200 GWh of energy.



5 GWh generated

200 GWh consumed

PROJECT OVERVIEW

What were the goals of the demonstration project?

For the University of Hawai'i: To provide multi-campus energy visibility to give the University of Hawai'i the ability to proactively manage energy usage for the first time.

For Blue Pillar: To expand the capabilities of their technology to serve the complex needs of a new market segment.

How did we achieve this?

Blue Pillar integrated their *Aurora* energy IoT platform throughout the University of Hawai'i's Mānoa and West O'ahu campuses. The platform aggregates real-time energy data from the campus' utility substations, multi-building electric sub-meters, building automation systems, as well as PV systems and solar inverters.

Why was this project transformational?

This project is one of the first instances of a university connecting such a wide array of distributed assets into a single, vendor-agnostic platform.

University of Hawai'i's energy managers now have a central data repository for all energy data regardless of asset type, manufacturer, or communication type. And, most importantly, the *Aurora* IoT network can scale with any of the University's new energy initiatives.

What role did Elemental Excelerator play?

- Catalytic Funding and Connections - Elemental facilitated an introduction to a large customer for Blue Pillar in a new customer segment – universities. Our funding helped enable this new customer segment.

CUSTOMER



PARTNERS

Hawaiian Electric Company
Island Controls
Pacific Metro Electric

IMPACT METRICS



0

Man-hours needed to check analog meters in buildings Blue Pillar's technology was deployed

2600

Data streams collected from across the UH network every second



30

Of the University's most energy intensive buildings monitored

Results

Blue Pillar's *Aurora* energy IoT platform is collecting and analyzing 2600 data streams every second from more than 30 of the University's most energy intensive buildings and integrating data from utility substation monitoring, 75 multi-building electric sub-meterings, 30 building automation systems from multiple manufacturers, and 44 solar inverters from multiple photovoltaic systems across multiple campuses.

The University's Office of Energy Management has significantly reduced the amount of human-hours needed for monthly inspections, meter readings, and manual data input; improved the accuracy of the readings; and utilized the power quality and analytics automated reporting feature to optimize strategies for energy and cost savings.

Key Insights

The *Aurora* to cloud API integrations have allowed Blue Pillar to centralize the university's energy data even when it resides offsite in the cloud within siloed, third-party applications.

Through the integration, Blue Pillar has shown that energy management starts with energy visibility and real-time energy data. Blue Pillar's wholistic approach to energy visibility allows University of Hawai'i to see how its energy is being used, enabling intelligent decision-making around energy efficiency investments.

Q&A with Blue Pillar CEO Tom Willie

Q: How is Blue Pillar different from others in the crowded IoT space?

Tom Willie: *From our inception, Blue Pillar has focused on creating an IoT platform that is agnostic to the different types of equipment and systems in a customer site and also open to any application that needs access to this data over time.*

Q: How has this project expanded your customer base?

Tom Willie: *The University of Hawai'i project was truly a phenomenal showcase for us to demonstrate how Blue Pillar's platform could be used to achieve sustainability goals. The ability to showcase how our system could integrate not just equipment but dozens of Building Automation Systems from multiple vendors has paved the way for a whole new set of conversations with customers looking for similar functionality.*

Q: What's next for Blue Pillar? How are you building on this project?

Tom Willie: *We are building on this project by beginning to integrate our system, not just to energy-related equipment and systems, but to other facility sensors as well. We foresee a future where Blue Pillar could be the networking platform for energy, environmental, safety, and even security devices.*

“This project highlighted what was possible when an organization truly embraced the benefit of having a secure, central data repository for facility-based information. We believe this thinking is proliferating throughout the industry and is part of a bigger digital transformation conversation on how facilities are going to integrate sensors and non-human interface devices in a strategic way.”

Tom Willie, CEO, Blue Pillar



Eric Reichel, VP of Customer Success and Project Lead, Blue Pillar

Q&A with Miles Topping, University of Hawai'i Director of Energy Management

Q: Why were you interested in this type of technology?

Miles Topping: *After years of making do with poor quality data, we needed a way to rapidly upgrade the quality and visibility into our energy use patterns if we are to be able to reach our ambitious clean energy goals. Deployment of BP's technology sets a strong foundation for our future plans.*

Q: Have you learned anything surprising about the University's energy usage through this project?

Miles Topping: *We have already initiated multiple efficiency projects based on the data collected by this project. For example, LED lighting conversions are under way for exterior building facades, and a major overhaul of our sports field lighting systems is anticipated to save up to 70% of the energy consumption from the existing halogen technology. This improved visibility into our energy usage is helping us to establish a baseline of buildings' existing usage patterns, so that design teams currently scoping major campus renovations are better informed to develop more efficient and robust building designs.*

Q: How do you see this playing into your future energy initiatives?

Miles Topping: *Smart energy management is data driven with real time feedback. In the future, we envision smart buildings will self-optimize for the ever changing use patterns, user behaviors and climate conditions - our transition to the future will be a careful one.*

A man in a dark shirt and glasses is operating a large industrial machine in a factory setting. The machine is complex, with various pipes, gauges, and mechanical components. The man is standing to the right of the machine, looking at a control panel. The background shows a typical industrial environment with metal structures and equipment.

“Blue Pillar's technology allowed us to leapfrog from outdated analog equipment into the 21st century.”

Matthew K Lynch, Director,
UH Office of Sustainability



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