

FINANCIAL ALLY IMPLEMENTATION MODEL

KUAKINI MEDICAL CENTER – METRUS ENERGY AND ENERGI



LOCATION

Honolulu, Hawaii

CHALLENGE

Kuakini Medical Center needed to make energy-efficient equipment upgrades critical to hospital operations without upfront costs.

FINANCING SOLUTION

Metrus Energy funded 100% of the project costs and worked with Energi, and Energy Industries (EI) to fully design and develop a comprehensive energy-saving program for the hospital. The project is operational and is saving the hospital \$1.1 million annually.

FUNDS COMMITTED

\$5.8 million

PROJECT DATES

Construction started in December 2013

Construction completed in September 2014

PROGRAM PARTNERS

Kuakini Health Systems, Metrus Energy, Energi, New Resource Bank, Energy Industries, Hawaii Energy

Overview of Financing Solution

Kuakini Medical Center wanted to implement a series of energy efficient measures and equipment upgrades that would provide significant energy savings and critical system upgrades for its 212-bed acute care hospital in Honolulu. Kuakini engaged Metrus to design a financing program that pays for 100% of project construction and ongoing maintenance costs. Through Metrus' Efficiency Services Agreement

(ESA) structure, Kuakini got a comprehensive financing solution that eliminated upfront costs, increased system redundancy and integrated the delivery of ongoing maintenance and monitoring services.

The project is fully constructed and was commissioned in mid-September 2014. The project will now generate \$1.1 million in savings annually. Kuakini was able to implement critical facility improvements and equipment upgrades without using its own capital or taking on new debt.



Project Scope and Results

The Kuakini project encompasses two separate buildings that make-up the Kuakini Medical Center campus. The medical center was built in 1939 and is 228,998 square feet. It is a licensed 212-bed acute care hospital. The project also includes upgrades and retrofits at Kuakini Geriatric Care Inc. (the Hale Pulama Mau Building) which was built in 1981, is 169,511 square feet and is licensed for 187 SNF/ICF beds and 34 residential care home beds.

Key results of the \$5.8 million retrofit and facility upgrade project at Kuakini include:

 **Significant efficiency upgrades:**

- New chiller plant
- Lighting upgrades
- Energy management system
- New steam boilers
- Air-handling unit VFDs
- New booster pumps and fire pumps

 **Savings:**

- \$1,100,000 in annual utility expense
- 3.5 million Kilowatt-hours of electricity
- 10,800 therms of natural gas

 **Environmental benefits:**

- 2,956 tons of CO2 per year

Innovative ESA Financing



Summary:

Metrus funds 100% of the project and Kuakini has no capital outlay on the equipment upgrades. Kuakini will make ESA payments based solely on actual performance and realized savings. Energy Industries will implement the EE measures and provide ongoing maintenance of the equipment over the ESA term. Energi is providing Energy Industries with an energy savings insurance policy that mitigates project performance risk for all parties during the full-term of the ESA..

Details on financing structure:

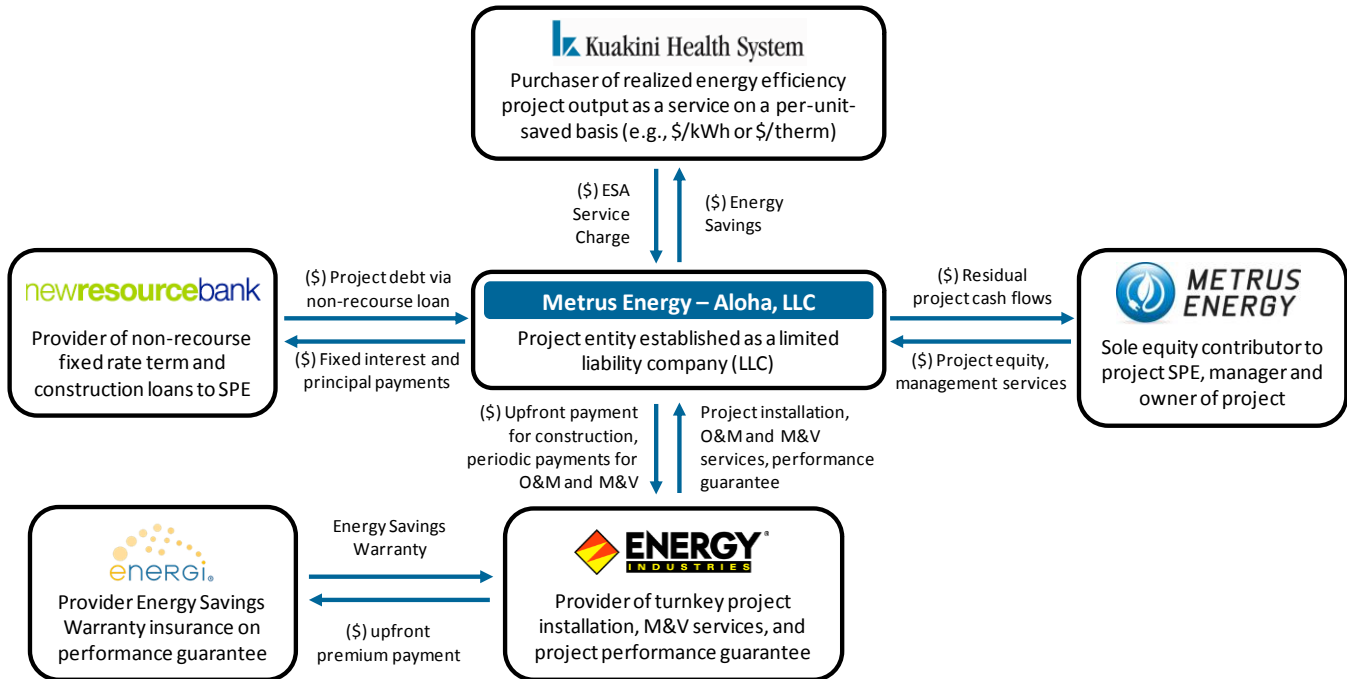
Energy Industries, who has worked with Kuakini over the last decade, developed a comprehensive approach to replacing the hospital's central air conditioning and steam plants that provides significant energy savings. Kuakini engaged Metrus to design a financing program that pays for 100% of project construction and ongoing maintenance costs through Metrus' Efficiency Services Agreement (ESA) structure. Metrus partnered with Energy Industries to integrate the delivery of the technical and financial services that meet Kuakini's requirements. As a result, the hospital will see a 25% reduction in its total utility bill while conserving capital for its core operations and creating a more comfortable environment for its patients.

Under the ESA, Kuakini's payments are an operating expense—just like a regular utility bill—except based on energy saved rather than energy consumed. ESA payments from Kuakini are set at a significant discount to the hospital's current utility rates and are based on cost per unit of avoided energy (i.e., a \$/avoided kilowatt-hour of electricity and \$/avoided therms of natural gas). During the ESA term, Metrus

pays for the ongoing maintenance and other project-related services as well as the repair and replacement of EE equipment that Energy Industries will provide.

In parallel to the ESA, Metrus entered into an Efficiency Services Performance Contract (ESPC) with Energy Industries, an experienced energy efficiency provider, to design, implement and maintain the project.

Energi, a specialized insurance company is providing an energy savings warranty to help mitigate performance risk on the project and provide independent verification of energy savings calculations. Energi's Energy Savings Warranty (ESW) backstops Energy Industries' performance guarantee on the project under the EPSC with Metrus. The ESW is written through the International Insurance Company of Hannover. The utilization of the Energi policy was key to Metrus' ability to secure debt for this project (i.e., the insurance policy allows for Metrus and New Resource Bank to have added security and confidence in underwriting the guaranteed revenue from the project).



As illustrated in the figure above, Metrus enters into an ESA directly with the customer (Kuakini) and pays a third-party contractor (Energy Industries for this project) to engineer, implement and maintain the energy efficiency project (i.e., Energy Savings Performance Contract (ESPC) agreement). Metrus retains ownership of all project-related assets for the duration of the ESA term and pays for associated maintenance services to ensure long-term reliability and optimal performance of the systems. In each billing period, the performance of the project is quantified using agreed-upon measurement and verification (M&V) protocols, compliant with International Performance Measurement and Verification Protocol (IPMVP) established by the U.S. Department of Energy. These verified savings provide the basis for the ESA service charge. After the ESA term expires, the customer has the option to purchase the equipment at fair market value.

Metrus' ESA structure has the following characteristics which benefit Kuakini:

- **Avoided Capital Outlay** – Metrus funds 100% of the project costs, which enables Kuakini to implement critical equipment and facility improvements and conserve scarce capital funds for investment in patient care.
- **New CIP Equipment and Safeguards** – Metrus funds the installation of new equipment critical for Kuakini's operations, removes down-time risk and provides "system redundancy" for safety.
- **Immediate Cash Flow to Kuakini** – Kuakini receives \$155k of energy savings during construction. With the project operational, Kuakini pays ESA charges at a 22% discount to Kuakini's current utility rates

- **Use Energy Savings to Pay for Projects** – Metrus enables Kuakini to redirect a portion of their current utility spending to pay for efficiency improvements; ESA payments reflect realized energy and operational savings.
- **Lower Operating Costs** – ESA payments are set below Kuakini’s current utility price.
- **Enhanced Reliability of Operations** – Metrus pays for periodic, ongoing maintenance and project-related services (averaging \$80k/year in services paid for by Metrus) to ensure long-term reliability and performance of the project equipment.
- **ESA Payments Treated as an Operating Expense** – The ESA is a services agreement with regular payments that are treated as an operating expense (similar to a utility bill or PPA).
- **Reduced Exposure to Utility Price Uncertainty** – ESA payments escalate at a pre-negotiated, fixed annual rate that lessens Kuakini’s risk associated with utility prices increases.
- **Ongoing Monitoring and Continuous Improvements** – Metrus and EI will monitor the performance of the project and identify and fund new opportunities for energy savings as they emerge.



ESA Development Process

The development process utilized for Metrus’ project with Kuakini falls into the following three main stages: (1) Project Design & Scoping, (2) Project Construction, and (3) Project Operation.

- **Stage 1: Project Design & Scoping** – In mid-2013, Energy Industries completed a preliminary energy assessment of the potential for energy efficiency upgrades across the Kuakini Medical Center campus. The preliminary assessment results (which included a diverse mix of initial energy conservation measures) were then evaluated in the context of Metrus’ ESA financing model, helping Kuakini and Energy Industries to prioritize ECMs so that the proposed scope was both technically sound and financially feasible. This integration of technical and financial engineering into the design phase was critical to the success of the first phase of project development.

Following the preliminary energy audit, Kuakini entered into a binding project agreement with Metrus and Energy Industries, triggering the investment grade audit (IGA). During the 2-3 month IGA, Energy Industries finalized its engineering and design work (including developing ECM-level baselines to be used for ongoing measurement and verification) while Metrus worked with Kuakini to structure the financing and negotiate the necessary contracts.

In parallel to the IGA, Metrus and Energy Industries worked with Energi to finalize the terms and conditions of the ESW. Energi also conducted a review of Energy Industries energy savings calculations and M&V protocols.

Incentive applications totaling \$372,000 were also submitted to Hawaii Energy during Stage 1. The inclusion of utility incentives allowed Metrus to both add additional energy savings to the project and lower the overall ESA rate than otherwise would have been possible.

- **Stage 2: Project Construction** – Upon signing the project-level contracts (the ESA between Metrus and Kuakini and the ESPC between Metrus and Energy Industries), project construction began. The construction phase lasted for nine months. During construction, Metrus made periodic progress-based construction payments to Energy Industries.
- **Stage 3: Project Operation** – During the operations phase (from completion of construction to the end of the ESA term), Metrus pays Energy Industries for monthly maintenance of all installed efficiency equipment, as well as for measurement and verification of energy savings. On an annual basis, Energy Industries conducts measurements of project energy savings at an ECM by ECM level according to IPMVP and in a manner consistent with the methodologies set out in the ESA and ESPC contracts. Energy Industries then delivers the results of the M&V assessment to Metrus (stating the kilowatt hours, etc. saved during the measurement period), which Metrus uses to invoice Kuakini. Under the ESA arrangement, Kuakini is responsible only for paying for the actual, realized energy savings that are verified by Energy Industries. In the event that actual savings underperform expected savings, Kuakini pays only for actual savings. Further, the contract is set such that Kuakini pays a lower rate (e.g., \$/kWh) to Metrus as a service charge for avoided energy than it would pay its utility for energy consumed. As such, Kuakini is cash flow positive throughout project operation and has an option to purchase the project equipment at the end of the term. Further, Metrus’ ownership of project

equipment and Energy Industries' ongoing maintenance activity means that all parties are continually identifying and incorporating additional ECMs into the program.

- **Tools:**

- [Kuakini Project Case Study](#)

Project Partners



Kuakini Health System is a nonprofit corporation that operates for charitable, research and educational purposes to support and encourage social, human, health and medical care services. Since 1900, Kuakini has been a major health care organization committed to meeting the health care needs of the community through a wide range of comprehensive acute medical and surgical services, emergency services, outpatient services, long term care and innovative geriatric care programs for the elderly, medical and health care education, and internationally renowned research programs. Kuakini Medical Center is a subsidiary of the Health System. Kuakini Medical Center is a licensed, 212-bed acute care teaching hospital accredited by the Joint Commission.

Metrus Energy is a San Francisco, California-based specialty finance company that provides capital, project development and asset management services for energy efficiency projects at large commercial, industrial and institutional facilities. Metrus offers comprehensive project financing solutions, including its innovative Efficiency Services Agreement (ESA), whereby customer repayment is based on a cost per avoided unit of realized energy savings. Visit www.metrusenergy.com for more information. For Kuakini, Metrus steered the financial structuring and development of the project, working closely alongside its technical partner Energy Industries.

Energy Industries Corporation (EIC) is one of America's largest energy efficiency integrators. Founded in 1994 and based in Hawaii, EIC operates in Washington, Idaho, Oregon, Utah, California, Hawaii and Guam. The Company operates 3 divisions including Thermal, Lighting and Solar. EIC was previously named Hawaiian Electric's Trade Ally of the Year and received 7 awards from Pacific Gas and Electric for its energy efficiency work in California. For more information please visit www.energy-industries.com or www.facebook.com/energyindustries.

Energi is a Peabody, Massachusetts-based industrial reinsurance company that provides specialized insurance and risk management products to targeted market segments of the North American energy industry. The core programs include fuel distribution, fuel transport, energy construction, agricultural cooperatives, renewable energy, energy efficiency, utilities and oil & gas exploration. Founded in 2005 by insurance professionals and energy industry leaders, Energi is licensed in all 50 states.

New Resource Bank strives to provide services for people who are leading the way to a more sustainable world, and matches an entrepreneurial spirit with a dedication to achieving environmental and social as well as financial returns. Its mission is to advance sustainability through the loans it makes, the way it operates and its commitment to putting deposits to work for good.

Hawaii Energy Hawaii Energy is a rate payer-funded energy conservation and efficiency program under contract with the Hawaii Public Utilities Commission, serving the islands of Hawaii, Lanai, Maui, Molokai and Oahu. Hawaii Energy offers cash rebates and other incentives to residents and businesses to help offset the cost of installing energy-efficient equipment.

- **Tools:**

- [Metrus Energy Brochure](#)

- [Metrus Energy FAQ](#)