On ‘Opa‘u‘ula Ridge above Hale‘iwa Town on O‘ahu’s North Shore, it is a bustling construction site.

Turbine blades and generator and tower components for 30 wind turbines started arriving in June, and are being moved into position for installation. The turbines, which will generate clean, renewable energy, signify a major step toward sustainability at Kamehameha Schools’ Kawailoa Plantation.

The project is called Kawailoa Wind, and is being developed by First Wind, an independent wind energy company with 13 sites, primarily in the western continental U.S., and including wind farms in Hawai‘i located at Kahuku on the North Shore and at Kakeha Wind on Maui.

In 1996, Waialua Sugar Company shuttered its sugar operation and voluntarily surrendered the land to Kamehameha. For the first time in nearly a century, Kamehameha land managers were tasked with envisioning Kawailoa’s future.

“We were post-plantation. We were dealing with old infrastructure, loss of a big lessee, and were trying to repurpose the plantation. And we were losing money,” said Giorgio Caldarone, KS regional asset manager.

Kamehameha embarked on a new vision for Kawailoa centered on sustainability and food production. The company tapped land manager Kapu DeSilva Smith KSK’75 to manage the new plantation and recast the former sugar land as productive, food-bearing fields.

FROM MONO-CROP TO DIVERSIFIED AGRICULTURE

In the 16 years since Smith took over the diversified agricultural operation at Kawailoa, 2,500 acres are now in cultivation, with tenant farmers growing a variety of fruit and vegetable crops, as well as seed corn, plumeria and tuberose.

A cacao farmer recently signed a long-term agreement after a successful three-year trial run (see story on page 11), and a maile nursery is coming soon.

Smith, a personable and pragmatic woman who is now clearly comfortable in the fields, measures her success at diversification by imagining a well-balanced plate lunch.

“My plate is getting better,” she said. “We have papaya, asparagus and banana. We have lettuce. We have chocolate for dessert and sweet potato shochu coming soon. We can even wear a lei. But we don’t have meat!”

It won’t be much longer before Smith has some protein on her plate. Cattle is coming to Kawailoa. Kamehameha is setting aside 4,000 of Kawailoa’s 11,000 acres for cattle. The grass-fed herds will graze under Kawailoa Wind’s giant wind turbines.

With the addition of cattle, Kawailoa will be approximately 80 percent leased. In preparation for the cows, Kamehameha has spent $1.4 million in fencing around the wind farm.

On selecting future ranching tenants, Smith said, “Our priority will be for the person who will provide food. No horses in this area. We don’t want to do stabling or gentleman farming. We want to produce food.”

‘Kamehameha is a perpetual land owner with no intention of selling this land or converting it to urban use, so having a balance of diversified agriculture and energy just makes sense.”

– Giorgio Caldorone, KS Regional Asset Manager

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THE WIND SOLUTION

The idea to have wind turbines and cattle share the land is an innovative solution, because for the first time since Kamehameha reclaimed management of Kawailoa in 1996, the plantation will soon be able to cover its expenses and turn a profit.

“We needed to look for a mix of uses that would help justify the enormous investments in water and road related infrastructure that was needed. And so energy works really well in that mix,” Caldarone said.

“We also went to the North Shore community with our North Shore Plan, and the work we are doing here with this wind farm is very much driven and aligned with that plan, which had substantial community input,” Caldarone added.

“One of the biggest problems we faced here is the property taxes. We paid highest and best use taxes because the land was vacant,” Smith said. “With the introduction of cattle, we would be getting closer to breaking even because our tax burden is gone, but with the revenue from wind, you add another layer.”

First Wind broke ground at Kawailoa in February 2012. The project has the capacity to generate 69 megawatts of clean, renewable energy – enough to power 14,500 O‘ahu homes – and could supply as much as 5 to 10 percent of the island’s electrical load.

Wind gusts turn the turbine blades, which causes a generator to turn the turbine to spin and create electricity. The turbines have technology that allows them to rotate in any direction the wind is blowing.

“The turbines will always face into the wind,” said Kekoa Kaluhiwa KSK’94, director of external affairs for First Wind. Kaluhiwa spent 11 years serving with the office of Sen. Daniel Akaka KSK’42 before moving over to First Wind.

His coworker with the company is Wren Westcoast KSK’96, who is the development manager for First Wind. Westcoast is a former staff member with Kamehameha Schools, where he served in the communications department.

Installation of the 30 state-of-the-art Siemens turbines is expected to be completed by the end of September, with another two to three months necessary for testing and tying it in to the electrical grid. Kawailoa Wind will be Hawaii’s largest wind energy project yet – and the largest alternative energy project of any kind in the state.

First Wind is also contributing to the overall maintenance of the plantation.

The company has improved agricultural roads leading mau uka from Kamehameha Highway, and has also cleared invasive and fast-growing alberia trees.

First Wind is also replanting koa trees in the area. “We had to remove some koa, so we’re replac-
In the last five years, the water resources management team working for Kamehameha’s Land Assets Division, led by Ka’u‘o Duarte and Imla Lindsey, has redesigned and modernized water delivery systems, irrigation ditches, that were losing water to evaporation and seepage and were at risk of collapse and blockage, have been replaced with pipes. KS has also installed modern metering and control systems and repaired siphons.

Much of Kawailoa is currently irrigated with water coming from Lake Wilson in Wahiawā. Because of its quality — it is primary treated sewage water — only orchard crops, seed corn and flowers can be commercially grown there.

The decision to allow the production of seed corn at Kawailoa has led to some disagreements with those who believe it is an inappropriate use of the land. Monsanto’s cultivation of genetically modified (GM) seed corn on 400 acres at Kawailoa Plantation has stirred controversy. In response, Kamehameha Schools has reviewed information published by government sources regarding the safety of the seed corn Monsanto cultivates at Kawailoa, validated their compliance and enforcement regulations concerning use of chemical pesticides and herbicides, engaged in transparent dialogue with those concerned about this issue to promote education and understanding; and advocated that the state upgrade Lake Wilson water treatment facilities to enable a broader range of food to be cultivated on land currently occupied by Monsanto.

Because Kawailoa is the last user on the Lake Wilson line, Kamehameha has engineered a self-sustaining surface and groundwater system that is not dependent on Wahiawā. But pumping groundwater comes with high electricity costs. That is why Kamehameha is also researching the feasibility of installing photovoltaic solar panels at Kawailoa. “We’re going to look at solar pumping to reduce costs for irrigation. Theoretically, it should help us reduce our water costs and that will be a big benefit,” Caldarone said.

Land manager Smith has her eye on those remaining 500 acres. If an affordable water solution can be worked out, she’s like to see vegetable crops on those Kawailoa and ‘Opae’ula acres.

ADDDED-VALUE AGRICULTURE

Harnessing wind power has allowed for the expansion and further diversification of Kawailoa Plantation. “What it does allow is for us to do other things,” Smith said.

“One of the biggest points to make is that there’s so much acreage. We can choose to do everything.” Kamehameha has dedicated just under 100 acres of land between Ashley Road and Pulunah Streeet near Kamehameha Highway exclusively for organic farming. “We’re currently in active discussions with a potential master lessee for the new Punaume Organic Farm who will partner with KS to educate and grow new organic farmers.

While the concept is still in development, this farm is envisioned to provide lands that are irrigated and ready to farm. It would also offer a menu of additional resources to support marketing of specific products and opportunities as well as individual farmer operations — all things to make it easier for interested organic farmers to get started.

The Punaume Organic Farm is expected to be up and running in the next three years. “It’s not enough to just get them to grow food,” Smith said. “I think what Kawailoa Plantation has introduced to KS is that if we function as an enabler, as opposed to just a passive land manager, then all our areas can go to the next added-value step. I think it’s a unique approach right now in Hawai‘i.”

One of the main lessons Kamehameha has learned since taking over management of Kawailoa is how to function as an enabler, as opposed to just a passive land manager, then all our areas can go to the next added-value step. “I think it’s a unique approach right now in Hawai‘i.”

Smith also envisions an agri-tourism pavilion that would be accessible to the public — a place where people could meet the tenant farmers, see how their food is grown and learn more about agriculture.

THE AHUPUA‘A MODEL IN ACTION

There is well-placed pride in the progress and transformation at Kawailoa.

“I think the framework is in. I think I’ve done what I was supposed to do,” Smith said. “We thought we’d get there faster, but farming is not a fast-track undertaking.

The placement of orchard and vegetable crops, in combination with wind turbines and cattle, was more than strategic. It was a return to the ahupua’a model that Hawaiians used.

“They grew the right stuff on top, they all shaned up and down the ahupua’a,” Smith said. “It’s actually what the plate lunch model is about. I see that ahupua’a picture in my mind all the time. It’s what we were taught. It’s not a new model, it’s just that recognition that you can do the right thing and still make a profit.”

For more information on Kamehameha’s commitment to sustainable agriculture, visit www.ksbe.edu/ag.