'Organic wind farm' project is under way

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MAALAEA – Ground was broken Friday morning for a new kind of organic farming – "organic power," in the words of co-developer Kent Smith.

The Kaheawa Wind Power Project farm "is analogous to the farming that is so near and dear to us in the islands," said Smith, as Maalaea's infamous natural resource, the wind, whipped furiously at a crowd of about 60 who sheltered in tents.

Electricity from wind is "virtually organic in nature," said Smith. "We will work with the forces of nature."

Gov. Linda Lingle praised the project as "a harder way."

"Honestly, it's just easier to keep bringing in oil and burning it. We know how to do that," she said.

But the payoffs from wind could be large with the construction of the 30-megawatt farm at Kaheawa Pastures, even with a cost between $65 million and $70 million.

Projections are that it will supplant the importation of 168,000 barrels of oil each year for the next 20 years.

Smith estimated that would save each of Maui's 40,000-plus households $120 a year, "money that can be spent to buy the kids new shoes or taking tutu to dinner."

That's if world oil prices continue in the $60 a barrel range. If they go up, the savings would be even higher, said Paul Gaynor, president of UPC Wind of Newton, Mass., which is a 51 percent partner in the project.

Makani Nui Associates, the local group, owns the rest.

"Even before oil prices went up, Hawaii made the right choice" in mandating alternative energy development, said Gaynor.

Under the state's 20-20 Renewable Portfolio Standards, sellers of electricity are required to produce at least 20 percent of their power from renewable sources by 2020.

That requirement has steps: 8 percent in 2006 and 15 percent in 2015.

Lingle noted that Maui will reach the 15 percent benchmark much sooner – by next

April.

Kaheawa should produce about 9 percent of the kilowatt-hours consumed on Maui. Hawaiian Commercial & Sugar Co. already makes about 6 percent from renewable bagasse.

Running flat out, the 20 1.5-megawatt General Electric wind turbines could produce 30 megawatts, which is around 15 percent of peak electricity demand for the island.

But over the course of a year, given the variability of the wind, the average output is expected to be around 8 MW.

Bill Bonnet, Hawaiian Electric Co.'s vice president for regulatory and consumer affairs, said a 30-MW wind farm is about as big as Maui Electric Co. can integrate into its grid.

MECO insisted on strict parameters to ensure stability. Fluctuations in transmission that are too large can lead to power outages.

Bonnet, who was president of MECO until 2001, said three things stand out about the Kaheawa project, aside from the fact that it is the first commercial wind farm in Maui County.

"Firstly, community support. Quite often, the transition from concept to reality on the ground" is difficult, he says. "Not so here. It is the right thing at the right place at the right time."

Next, the purchase power agreement with MECO is, for the most part, not tied to the price of oil.

This is a first for HECO, and Bonnet said the speed with which the Public Utilities Commission gave its approval – in April, just four months after it was submitted – suggests it will become the model.

"Thirdly, more so than any other project, there is significant capital flowing from local sources, both debt and equity."

Lingle also singled out Central Pacific Bank for helping to finance the project with a long-term commitment.

It has been a struggle to bring a wind farm to Maui, and a man who was not present Friday, Keith Avery, did most of the struggling.

For a quarter of a century, Avery, who now lives in Oregon, tried to persuade business, government and citizenry that Maui needed wind power.

Avery brought Kaheawa's other local co-developer, Hilton Unemori, into the picture when he hired Unemori to do electrical engineering planning for a wind farm at Kapalua.

The technology was probably not ready then, and MECO was definitely not ready to pay Avery a premium over the price of electricity generated from petroleum. Avery said he needed that premium to make the project work financially.

The way the technology has changed is obvious from the physical characteristics of Avery's Kapua project from 15 years ago, compared with Kaheawa today.

Turbines were much less powerful then, about one-tenth the output of today's GE products, so there would have been scores of towers to get 20 MW, about two-thirds of Kaheawa's potential.

Even Kaheawa in 2006 will look different from the proposals submitted to the Board of Land and Natural Resources when a land lease was first sought four years ago. The project size was the same, about 30 MW, but would have required 29 towers.

Unemori, head of ECM Inc., has been a professional electrical engineer on Maui for nearly 30 years, and he says he was always interested in energy technology. But not until the mid-1990s did he begin to believe that the technology of wind had reached the stage where it made engineering sense.

As the price of oil-fired electricity rose and that of wind dropped, Avery – and now Smith and Unemori – no longer needed a premium price.

With tax breaks, the partners believe they can make money with MECO paying about 8 cents per kilowatt-hour. (An escalator will increase that price over the 20-year life of the contract.)

Eight cents looked good early in the year, when the PUC said OK, and looks better now.

When petroleum was selling for around $40 then, it cost MECO around 13 cents a kwh to make electricity.

Lingle said that in discussions to prepare her energy policy proposals to the next Legislature, she and Ted Liu, head of the Department of Business, Economic Development and Tourism, concluded, "We believe it's a fact (oil) will never fall to $50 again."

Kaheawa will sell about 70 percent of its output for 8 cents. The rest also will be sold to MECO, but at "avoided cost," which is the actual cost of MECO's most efficient generator.

As oil goes up, so does "avoided cost," which should fatten Kaheawa's balance sheet.

Unlike some other places where UPC is developing wind farms, the Kaheawa Pastures site above McGregor Point has no houses within miles, and the 180-foot towers will be invisible from most of the places where people go about their daily activities. But not all.

Concerns about the appearance of the towers have led to some worries.

Mike Gresham, vice president of Makani Nui and the project manager, says the towers and their 230-foot diameter blades will be painted "beige-white." The wind power industry has settled on this as the standard, least obtrusive color. Darker colors would stand out more against the sky, lighter more against the ground.

Unemori says that when the first Maui wind proposals came his way, "it looked so futile."

It was the entrance of an industrial heavyweight like GE that changed things.

"From an electrical engineering point of view, the project is dramatically enhanced by everything GE can bring to bear," Unemori says.

Previous experimental wind projects on Maui and Molokai have proven too flimsy for Hawaii's corrosive environment. But Unemori is convinced the new designs can meet MECO's "very stringent requirements."

MECO President Ed Reinhardt said the county's first commercial wind farm presents "many challenges and many opportunities."

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