

Based on a NASA design EWEB proposes coastal sites for windmills

By TOM WOLFE
Of the Emerald

The Eugene Water and Electric Board is proposing a space-age touch to develop one of the Earth's oldest and most plentiful energy resources — the wind.

Based on a design developed by the National Aeronautics and Space Administration, the windmills would operate by the same simple process used by their Dutch predecessors.

Wind turns the blades, producing a strong rotary action used in this case to produce electricity.

"We believe they can be built cheaply and operate efficiently for 20 years or more with only routine maintenance," says Ken Reinhard of EWEB's energy conservation center.

Oregon State University researcher, with a grant from EWEB and other Oregon utilities, studied coastal wind patterns for three years and have suggested several possible windmill sites along the Oregon Coast.

The Bonneville Power Administration examined several sites along the Columbia River Gorge, but at present has no development plan.

EWEB combining information from its own studies and the OSU research has proposed a test project that it, the federal government, and an Oregon Coast utility company willing to serve as the guinea pig will fund.

After several years of wind testing in the Cascade mountains and along the Oregon Coast, EWEB has concluded that coastal sites seem best.

"Slower, constant winds are best for producing electricity, and the gusts we found at our mountain sites were just too destructive," explains Reinhard.

When a windmill is constructed, its generator is geared for highest efficiency, based on the average wind speed through the area. If a windmill is gauged for maximum efficiency when the wind blows 20 mph, it produces no energy at minimal velocities, only moderate energy below the ideal rate and no additional energy in stronger winds.

This ties much of the windmill's efficiency to the accuracy of site studies and the constancy of wind in particular areas.

At the five best sites selected so far on the Oregon Coast, windmill-produced electricity is expected to be up to 50 percent cheaper than contemporary production, which uses oil, coal, dams or the atom.

EWEB's proposed design is a three-bladed model measuring 130 feet high and 82 feet wide.

Total cost, including the foundation and construction for one windmill, would be about \$250,000.

All parts would be built to last a minimum of 20 years, promises ALCOA Co., the proposed manufacturer.

Reinhard says the design includes a device to measure wind velocity and to trigger a lock for the windmill blades in excessive, possible destructive, gusts of 45 mph or more. He says that in locked position, the structure should withstand 150-mph winds without damage.

Reinhard says the windmill's design should also prevent wear and tear when the machine is operating.

The arc of its foil-shaped blades follows the natural curve of a sagging string loosely tied between two posts. This shape reduces the stress caused by centrifugal force, which is created when the windmill is spinning at its usual rate of about 40 revolutions per minute.

Conventional windmills are driven along a horizontal axis by a propeller, which must be directed into the wind. A vertical design produces relatively less energy but, since it uses wind from any direction, is free of directing apparatus, which adds to the original cost and eventual replacement costs.

Yet undetermined is how the mills would interface with the flow of electricity now in the lines or how they would interfere with wildlife.

"We've only seen one bird near our Cascade mountain test sites and believe birds will avoid the windy areas most suited for

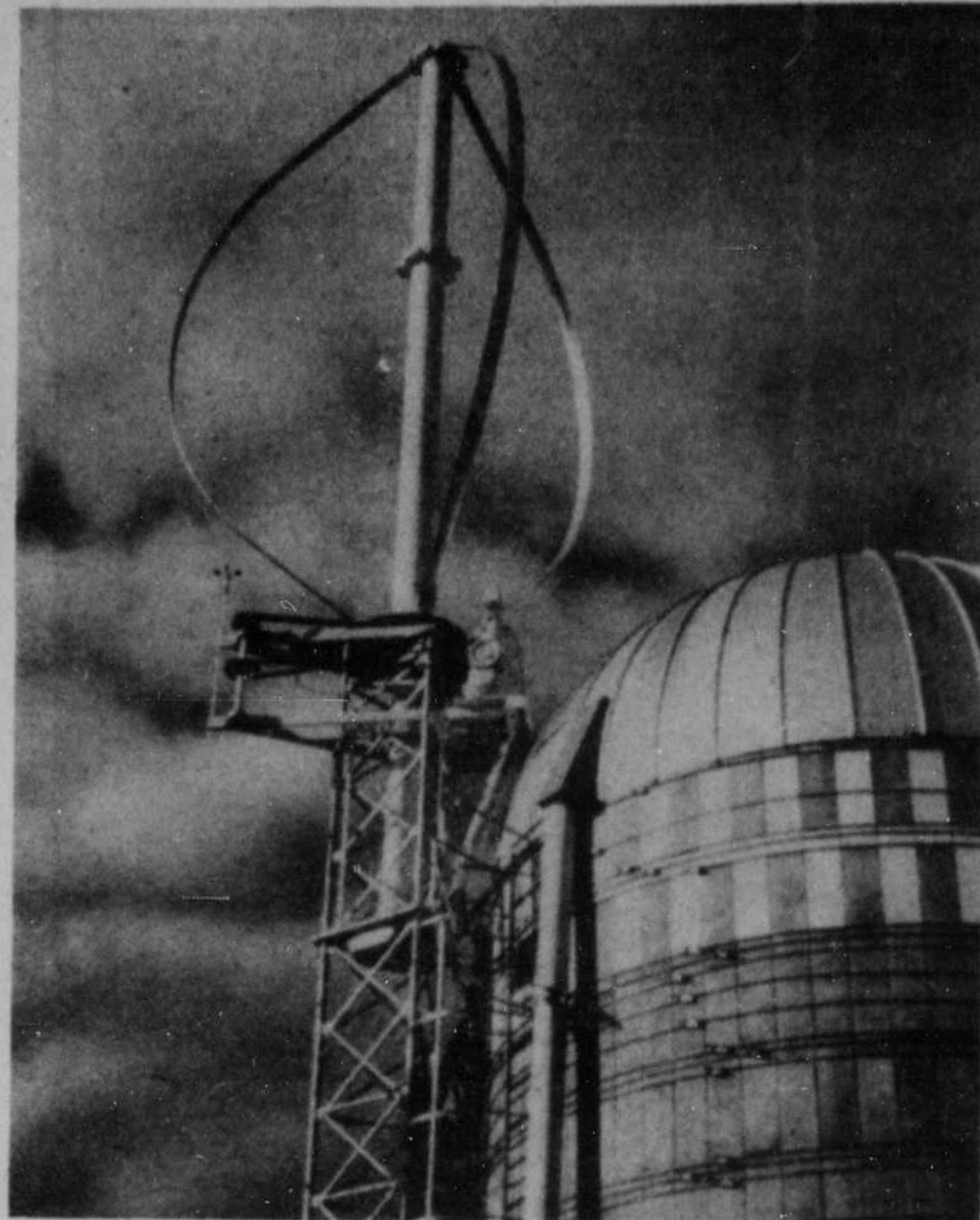


Photo courtesy of EWEB

EWEB's new windmills designed to generate electricity are still experimental, but EWEB hopes these prototypes may become future power sources in the Northwest.

our purposes," says Reinhard.

Currently, only smaller versions of the vertical-axis windmill like the one proposed have been tried, all with apparently few problems. But how the design would work on a much larger scale is yet to be determined.

Reinhard says he is convinced that the vertical design should be more free of much of the internal stress generated by a conventionally bladed design like the one operating in Clayton, N.M.

Since January that project has generated enough electricity for 60 homes using a two-bladed windmill that resembles a giant propeller.

The U.S. Department of Energy, sponsor of the Clayton project, plans three similar projects, one each in Rhode Island, Puerto Rico and North Carolina.

And, if EWEB gets its way, the DOE will help a coastal utility test the country's first large vertical-axis, electricity-producing windmill.

Siphoning gasoline proves dangerous

PORTLAND (AP) — Officials at the University Health Sciences Center say the gasoline shortage apparently is partly responsible for a dramatic increase in the number of gasoline poisonings in the state.

Lee Wanke, associate director of the Oregon Poison and Drug Information Center at the health science center, said there were 51 reported incidents of people ingesting or inhaling gasoline during the month ending May 19.

That compares with just nine such incidents last December. "I suspect that it probably has a lot to do with the fact that spring is here and people have taken their gasoline cans for their lawn mowers and other power equipment out of storage," Wanke said. "Probably it's also related to some extent to the gas shortage."

He said people are more likely to try to siphon gas out of their cars to use in lawn mowers instead of waiting in a gas line to fill a gas can for their mowers.

Wanke estimated that 75 percent of the ingestion cases result from siphon attempts. The rest, he said, usually involve small children who have access to unattended gas cans.

DON'T LEAVE TOWN

WITHOUT SAYING
GOOD-BYE...

with a Personal in
SPRING
FLINGS



Appearing June 4 (last day of
publication for Spring Term)
15 words for \$1.00 IF placed
by May 31 at 1 p.m.

GRE
LSAT • MCAT • GRE
GRE PSYCH • GRE BIO
GMAT • DAT • OCAT • PCAT
VAT • MAT • SAT
NAT'L MED BDS
ECFMG • FLEX • VQE
NDB • NPB • NLE
Stanley H. KAPLAN
EDUCATIONAL CENTER
Test Preparation Specialists
Since 1938
For information, Please Call:
The Galleria, Suite 402
(503) 222-5556

Expires 5-30-79

TACO TIME

3 Taco's for 99¢

Buy three taco's at any TACO TIME for 99¢ when you submit this coupon at the time of purchase. One coupon for one customer for one purchase. Good at participating TACO TIME establishments in Oregon and Vancouver, Washington.

OR-EMER-79-1

emu

Oregon Wilderness Supplies

SUMMER CLOTHING SALE

20% OFF

SHORTS - Woolrich, Chouinard, Sub-4's, others.

UnJeans - Wheat, Navy, Natural colors.

SHIRTS - Woolrich tartans, flannels, and chamois, Chouinard Canvas shirts.

at

**OREGON
WILDERNESS
SUPPLIES**

LOWER LEVEL EMU 686-3089



**SALE ENDS
JUNE 1ST**