

Why EnXco's Desert Claim Project Must Not Be Approved

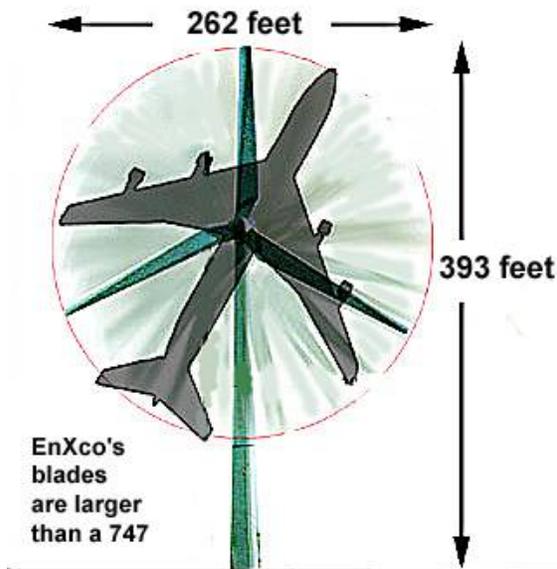
ROKT'S CONCERNS ABOUT THE REVISED DEVELOPMENT AGREEMENT

***PRESENTED TO THE KITTITAS COUNTY BOARD OF COMMISSIONERS,
MARCH 1st, 2005***

***ROKT
Residents Opposed to Kittitas Turbines***

INTRODUCTION

ROKT represents several hundred Kittitas County residents and landowners strongly opposed to EnXco's Desert Claim windfarm. Our main objection is to the **location** of EnXco's project - a scenic residential area only a few miles out of town. Other locations maybe acceptable – if there are benefits to the county from a windfarm then these benefits still accrue wherever it is located.



Nowhere else in the USA has a huge wind farm been proposed so close to a major community. (Zilkha's Highway 97 project is the only exception.) This area is viewed as "the low-hanging fruit", because of its closeness to BPA's and PSE's power line corridor. EnXco has told the county that it's project is in "the only viable location", obviously untrue since two other windfarm proposals are currently before the county, and still other developers are eyeing new locations.

Desert Claim is to be built on four non-contiguous areas, and thus **does not legally constitute a wind farm**, as defined by the Kittitas County ordinance. The application should be denied for this reason, if for no other.

The revised Desert Claim Development Agreement establishes new setbacks. By the applicant's own admission, turbine technology of this size is new. There **has not been sufficient time** for a historical database to be built up so that safety setbacks can be set for such large scale industrial wind-electricity generation.

This documents proposes more reasonable setbacks for:

- noise
- blade and ice throw
- tower collapse
- fire
- radio/TV/cellular transmission
- shadow flicker
- property devaluation

ROKT believes that the project must be rejected in its entirety, but if the BOCC approves it then this document argues for an overall **setback of 1 mile** from public and private roads, and non-participating property lines.

WIND TURBINE COLLAPSE

Wind turbine tower collapse is not a rare event. The pictures below are of collapses that have all occurred in the last few years.



Here's what a US wind energy textbook (Wind Energy Theory, Design & Application - Manwell, McGowan & Rogers, University of Massachusetts, 2002) says:

*“High ice loads and high winds, poor tower or poor foundation design, or corrosion **can bring entire turbines to the ground.**”*

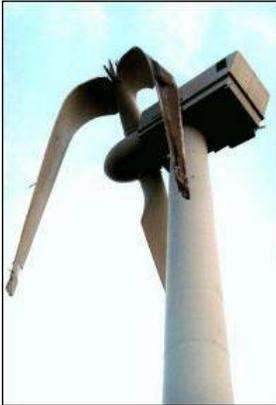
The danger of collapse dictates substantial setbacks from roads and neighboring property lines. The 1,000 foot setbacks proposed by EnXco are not enough. And EnXco wants the right to waive this setback by paying off neighboring property owners - this must not be allowed.



Wind farms and residences do not mix. The 1,000-foot setback in the revised Development Agreement is inadequate. 1 mile is a minimum.



BLADE THROW DANGER



- The blades on the wind turbines proposed by EnXco weigh over **1.5 tons**.
- When these blades are turning their tips are moving over **200 miles per hour**
- When turbine blades have broken off they have been thrown up to **1200 feet**.

There have been a significant number of blade failures in many European countries including Germany, in which four particularly severe events resulted in fragments of blade weighing up to half a ton being thrown up to 800 feet.

A report written by a German university comments,

*“From the experience in Germany, where presently of all European countries the greatest number of turbines is installed, it appears that **this technology is by no means safe**, particularly with the large new models, with rated capacities of 500 kW and more.”*

(EnXco’s proposed turbines are much larger, rated at three times this capacity.)

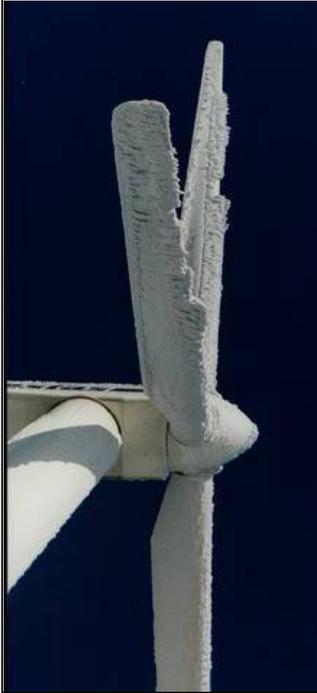


Here’s what the US wind energy textbook (*Wind Energy Theory, Design & Application - Manwell, McGowan & Rogers, University of Massachusetts, 2002*) says:

*“One of the major safety risks from wind turbines is that a **blade fragment can be thrown** from a rotating machine. Turbine nacelle covers and rotor nose cones can also blow off machines. The distance a blade or turbine part may be thrown has rarely exceeded **1500 feet**.”*

When turbine parts can be thrown 1500 feet the 1,000-foot setback in the revised Development Agreement is inadequate. ROKT believes that the Desert Claim application should be denied, but if it is approved a setback of at least three times this distance - 1 mile - is necessary.

ICE THROW DANGER



Turbines blades are locked down by brakes until the wind reaches a critical speed. In winter there is a risk that lumps of ice can form on them and then be thrown significant distances when the blades begin to turn rapidly. A German study has shown that ice fragments weighing up to **40 pounds** can travel up to **1500 feet** and land with impact speeds of **170 mph**.



The picture at right is of a chunk of ice thrown hundreds of feet by a turbine.

Here's what the wind energy textbook (*Wind Energy Theory, Design & Application - Manwell, McGowan & Rogers, University of Massachusetts, 2002*) says:

*"Ice can result in rotor imbalance, malfunctioning aerodynamic brakes, downed power lines, and **danger to personnel from falling ice**. Safety problem can occur when low temperatures cause ice build-up on turbine blades. As blades warm **ice either falls to the ground or can be thrown from the blades.**"*

Some wind farm developers erect "Falling Ice" warning notices around their turbines during the winter. The State Line wind farm on the WA/OR border does not allow maintenance personnel to drive below the turbines in winter for this reason.

EnXco's turbines would be far too close to homes, properties, and roads for a 1,000 foot setback to be adequate. ROKT believes that the revised Desert Claim development Agreement should be rejected in it's entirety. But if it is approved then a setback of over three times the maximum ice throw - 1 mile - is necessary for safety.

THE FIRE HAZARD

Fires are a regular occurrence at wind farms. There several reasons for this:



*“Fires have started from numerous causes: substandard machine **maintenance**, poor **welding** practices, electrical **shorts**, equipment striking power lines, and **lightning**.”*

(Quoted from Wind Energy Theory, Design & Application - Manwell, McGowan & Rogers, University of Massachusetts, 2002)

A California newspaper (The Tri-Valley Herald) quoted a fire-prevention captain at the California Department of Forestry as saying (referring to the area near the Altamont Pass wind farm),

*“**Ninety percent** of the fires last year were started by the windmills”*

The photo at left is of a turbine-caused fire at the Altamont wind farm.

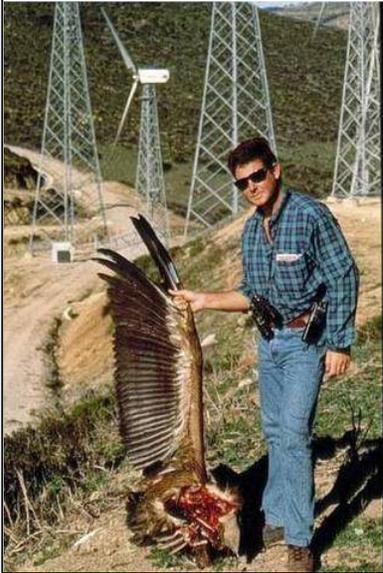
The US Department of Energy wrote,

*“Depending upon their locations, wind facilities may represent **an increased fire hazard**.”*

The fire risk to homes and lives in a populated area demands that EnXco’s wind farm be situated away from populated areas, not along Reecer Creek Rd. The revised Desert Claim Development Agreement does not address this concern and should be rejected.



THE IMPACT ON WILDLIFE



*“Wind energy can adversely affect birds through **electrocution** and **collision** deaths, changes to **bird foraging** habits, alteration of **migration** habits, **reduction of available habitat**, and **disturbance of breeding and nesting patterns.**”*

(Quoted again from Wind Energy Theory, Design & Application - Manwell, McGowan & Rogers, University of Massachusetts, 2002)

The California Energy Commission says that the wind farm at Altamont Pass kills each year

- 200-300 Redtail Hawks
- 40-60 Golden Eagles

The California Energy Commission also estimates that 7000 migrating birds a year are killed by other wind turbine sites in Southern California.

Kittitas Audubon Society, on September 2, 2004, voted to oppose EnXco’s project (and Zilkha’s KVVPP wind farm) due to **“the detrimental consequences on birds, bats and habitat to this valley.”**



Kittitas Audubon Society President Keith Johnson wrote in March 2004,

“Kittitas Audubon can only hope that our county government, commissioners, and planners, will look at the long-range harm to Kittitas Valley and deny any zone changes that would allow these wind farms in the valley.”

The birds and wildlife that Kittitas Valley is famous for is threatened by EnXco’s project. The bird studies presented by EnXco are inadequate. Desert Claim should be denied.

PROPERTY DEVALUATION - WHAT LOCAL EXPERTS SAY



EnXco's project is proposed for a highly desirable residential growth area of the county, with homes valued in the \$250,000 range. EnXco's 120 structures, **each the size of a 40-story building** and topped with **strobe lights**, are obviously incompatible with surrounding land use.

Roger Weaver, owner of Re/Max Community Reality in Ellensburg and Re/Max Alpine Realty in Cle Elum:

"The proposed wind farms in the Kittitas Valley have clouded rural land use and the whole concept of country living. Wind farms have never been proposed in an area such as the Kittitas Valley where there is subdivided and developed property with scenic views and high recreational property values. There are locations where wind farms are more compatible with surrounding properties and would have less of an impact on values. If wind farms are allowed in the valley, they will lower property values for lots close to the towers."

Lynn Jenison, owner of Windermere Real Estate in Ellensburg:

"My negative vote (on the windfarms) was predominantly from the real estate perspective. The impact of how it will affect the viewscape is one major issue that I have a problem with. I really do think people close to the wind farm are going to suffer some loss of value initially if the project goes up."

Bill Allison, president of the Kittitas County Realtors Association:

"Most of the Realtors have concerns that the land values will go down and it will be an eyesore"

If EnXco's project is approved that neighborhood of Ellensburg will be closed off for future expansion as the city's population increases. Existing residents and landowners will see a dramatic drop in property values. A setback of 1 mile from property lines will mitigate this impact.

INTERFERENCE WITH TV, RADIO, CELL PHONES, AND RADAR

“TV interference from wind turbines is characterized by jittering of the picture.”

(This is, again, from the reference textbook *Wind Energy Theory, Design & Application* - Manwell, McGowan & Rogers, University of Massachusetts, 2002)

TV viewers up to 6 miles away may experience "ghosting," flicker, a buzz in the sound and a loss of detail and color as the turbines blades rotate. In the UK, the BBC and the Independent Television Commission recommended that wind farm developers be compelled to restore reception.

Recently Zilkha built a windfarm in Iowa, comparable to EnXco's proposal for Reecer Creek Rd, which caused significant interference with local communications:

“The 325-foot-high wind turbines at Zilkha's Top of Iowa Wind Farm sitting on a ridge, are causing static on television screens in the surrounding area. Reception complaints began shortly after the wind farm went online in mid-October. The rotating blades are interfering with broadcast signals, said Don Willis, site inspector and consultant for Zilkha Renewable Energy. "There is a pulsating static, especially on windy days, caused by the turbines," Willis said.”

(quoted from The Globe Gazette, Mason City, Iowa, April 17th, 2002)

EnXco's project would likely cause similar problems, affecting thousands of residents. Desert Claim should be denied in its entirety. But if the project is approved then interference with communications can be mitigated with a setback of at least 1 mile from non-participating property lines.



WIND TURBINE NOISE

A wind turbine is a **1200-horsepower engine located 300 feet up in the sky**. According to EnXco, their noise level during normal operation will be over 105 dB(A). This is equivalent to a rock & roll band or a jet aircraft at 250 yards. Because of such high noise levels many communities require very large set-backs for wind farms. 1,000 feet is completely inadequate.

But these noise measurements **do not tell the whole story**. There are two kinds of noise produced by wind turbines:

- **mechanical** noise created by the gearbox and bearings
- **aerodynamic** noise caused by the blades chopping through the air

Aerodynamic noise – often called “**blade thump**” – is the problem, and it can be heard up to a mile away. The dB(A) noise scale does not accurately measure the impact of low frequency noise which is so problematic with wind turbines. Blade thump is a penetrating, low-frequency sound each time a blade passes the turbine tower, about 80 times per minute. It **sounds like a helicopter in the distance**, the volume rising and falling due to slight changes in wind direction. At a mile the noise is not loud, but **because it’s rhythmic it is extremely irritating**. For those in the affected area there is a feeling of anxiety, and sometimes nausea, as the rate continually speeds and slows.

The Great Lakes Radio Consortium aired a story about windfarm noise on January 3, 2005. It quoted Thomas and Virginia Alexander who live 1500 feet away from a windfarm in Michigan. They're in their eighties and they both wear hearing aids, but even without them they say the windmills are loud:

Tom Alexander: "There's things about it we don't appreciate, the noise, depending upon the wind direction.

Virginia Alexander: "Yesterday, very noisy yesterday. The wind was high and you could really hear them."

Tom Alexander: "Just a continual swish, swish, swish, swish, swish."

*Windmill developers say the sound is no louder than normal speech. **But this noise is different**. It goes beyond the frequencies of normal speech. The sound can travel long distances through both the ground and the air. They keep Virginia Alexander awake some nights. "Don't let them go in your backyard. There are other places they can go. You don't just put those in somebody's backyard. I don't think it's right."*

If the project is approved then evidence supports a setback of 1 mile to minimize disturbance to neighbors by noise.

SHADOW FLICKER

Shadow flicker is yet another major issue for those living near the proposed EnXco wind farm. When the sun is at low angles - **morning and evening and during most of the day during winter** – shadows from the 200-foot diameter turning blades sweep rapidly across the landscape.

This creates a **pulsating light effect** in rooms that would ordinarily be basked in sunshine. It cannot be overstated how disconcerting this is to people and animals. Shadow flicker can be a problem up to 1 mile away from a rotating wind turbine.

Blade glint - the regular reflection of the sun off rotating turbine blades, creating a flashing effect **like a strobe light** - is a related problem. The New Zealand government energy authority says:

“Blade glint can be a potential distraction to drivers if roads are aligned towards turbines. The effect can be noticed over considerable distances - as much as 6 to 9 miles.”



At left is a photo of the Stateline wind farm on the WA/OR border. The turbines proposed by EnXco are over 100 feet taller than those shown here. Note also the complete absence of homes in this photo, the remote location. This is good wind farm siting.

ROKT argues that the Desert Claim project should be denied in its entirety. But if the project is approved then the evidence shows that eliminating shadow flicker on surrounding houses and properties requires a 1 mile setback from neighboring property lines. The 1,000 foot setback in the revised Development Agreement is inadequate.

SUMMARY

According to the most recent census the county retail trade - which caters to tourists - employs 2,867 people, earning \$38 million annually. But EnXco's huge industrial wind plant will have a significant adverse affect on tourism. **Tourists do not come here to see industry, they come to escape it.** Table Mountain, in particular, is a popular tourist destination.

In 2002 Lincoln Township in Wisconsin compared property sale prices to assessed values before and after a wind farm was constructed. Their assessor reported that property sales after the wind farm was built declined by 26% within 1 mile of the project. Lincoln Township surveyed county residents after the wind farm was built and found that

- 74% of respondents would not build or buy within ¼ mile of the project
- 61% would not build or buy within ½ mile
- 59% would not build or buy within 2 miles of the wind farm

The conclusions are clear. Allowing the EnXco project in this location

- would have a major detrimental effect on the surrounding residents
- would significantly depress land values
- would make an area much larger than its 5,200-acre footprint unusable for future expansion of Ellensburg's population
- would impact tourism

and would thus have widespread negative effects on the county's economy.



The EnXco project is not compatible with the County's comprehensive plan. The applicant has failed to demonstrate that the proposal is essential or desirable to the public convenience. The project proposal is not compatible with surrounding land use in this area of the county. The proposal

is also clearly detrimental and injurious to the public health, peace, and safety, and to the character of the surrounding neighborhood.

EnXco's Desert Claim project must be denied.