Impact of Wind Turbines on Market Value of Texas Rural Land

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Will a wind turbine affect my property value?
WILL A WIND TURBINE ON MY PROPERTY EFFECT THE MARKET VALUE OF MY NEIGHBOR’S PROPERTY?
WOULD YOU PAY THE SAME PRICE FOR THIS LAND \textit{AFTER} WIND FARM AS \textit{BEFORE} WIND FARM?
Do you know how big they really are?
THIS IS HOW BIG THEY ARE!

70 metre Diameter

70.5m Length

59.6m Span

35 metres Blade

60 metres Base height

Boeing 747 Jumbo Jet
When valuing real property, first determine the property rights to be appraised; the most complete form of ownership is “title in fee” or FEE SIMPLE INTEREST.

- Most complete form of ownership
- Unencumbered by any other interest or estate
- Only subject to limitations imposed by the government (taxation, eminent domain, police power, escheat)
Property Rights Associated with Fee Ownership

Public Air Rights

Private Air Rights

Surface Rights

Subsurface Rights
- Coal
- Minerals
- Oil
- Water

Surface of Earth

Property Boundary

Center of Earth
Ownership of a fee simple interest = ownership of the complete bundle of rights;

Each right represents a partial interest in the whole
Real property ownership includes a bundle of rights – each with a value:

- right to sell/lease/mortgage an interest
- right to occupy the property
- right to convey
- right to do nothing at all

Unlike mineral rights, Texas is undecided as to "wind rights" – can they be conveyed? Can they be retained?
Market forces create value; same market forces have a bearing on the **HIGHEST AND BEST USE OF LAND**

**HIGHEST AND BEST USE MEANS** the use of the property that results in the **HIGHTEST VALUE** that is also:

- **LEGAL**;
- **REASONABLY PROBABLE**;
- **PHYSICALLY POSSIBLE**;
- **FINANCIALLY FEASIBLE**

**HIGHEST AND BEST USE IS THE FOUNDATION UPON WHICH MARKET VALUE RESTS**
Taylor County Hunting (Recreational) Leases Bring $12.00 to $18.00 per acre… Compared to Grazing Leases Bring $2.50 to $3.50 per acre…

Recreational Use Includes:
Hunting, Fishing, Camping, Hiking, etc… Wildlife Resources & Conservation, Live Water, Weekend Place, Peace & Quiet

In the past 25 years the highest & best use of Texas Rangeland has changed from Agricultural use to recreational use.
DIRECT SALES COMPARISON APPROACH;
MOST WIDELY USED AND ACCEPTED
APPROACH TO VALUEING RURAL PROPERTY

• Defined as an estimate of value of recent
  sales of similar property in the surrounding
  or competing areas – as compared to the
  subject property
PROPERTY CHARACTERISTICS NECESSARY FOR THE COMPARISON

- Property rights conveyed
- Financing of the purchase
- Conditions of sale
- Market conditions over time
- Mineral interests
- Improvements
- Size/Shape
- Physical Characteristics
- Live Water
- Fencing
- Location/Access
- Views
NOT COMPARABLE

RESIDENCE

RURAL
PAIRED SALES ANALYSIS

Within the direct sales comparison approach - several techniques are used to quantify adjustments - most commonly used technique is that of paired sales:

When two properties are in all other respects equal, a single difference can be measured to determine the difference in price between the two.
TWO TRUCKS – BOTH FORDS; BOTH F-150; BOTH FOUR WHEEL DRIVE; BOTH 2009 MODELS – ONE DIFFERENCE
LARIET PKG VS KING RANCH PKG

LARIAT $36,000.00

KING RANCH $45,000.00
COMPARING THESE TWO TRUCKS UNDER PAIRED SALES TECHNIQUE:

KING RANCH PCKGE CONTRIBUTES $9,000 IN VALUE OVER THE LARIAT PCKGE
PAIRED SALES TECHNIQUE is used in determining the value of:

- Undivided interests (multiple owners of property)
- Conservation easements
- Burned Property (due to wildfires, grassfires)
- Presence of Power Lines & Transmission lines
- Presence/ view shed of wind turbines
- Other property conditions
WHAT WE KNOW ABOUT WIND TURBINES
common sense stuff

- Up to 600’ feet tall
- Constant noise
- Shadow/flicker
- View shed effect – turbines tower over horizon, changing the view
- Construction; transmission lines; substations
- Turbines forever change the aesthetics; a more industrial feeling
- Loss of native wildlife habitat
Findings:
wind turbines will not diminish Property Values, but will enhance Property Values

Flaws:
1. funded by proponents of wind power built in bias in conclusions...
2. methodology used lacks necessary variables for analysis...
VARIABLES NOT USED IN REPP

- Rising or falling market
- # of days from listing to sale
- Residential property; not rural property
- Did not take into account effect of noise, flickering, shadow
- Does not factor in distances....
- Possible change in Highest and Best Use because of presence of wind turbine...
Appraisal Research Shows:

• A **VIEW adds value** to rural property
• Take **view away** – added **value goes away**
• Brokers in rural areas confirm that property values in areas of wind facilities are **10% - 30% less** than property not in areas of wind facilities.
• Wind energy development creates an income stream, increasing property’s production value; increased production value does not necessarily result in increased market value
Case Study One - 2007

- 350 acres in Erath County – top end ranch purchased for retirement homestead....
- 27 wind turbines within 1 ½ mile radius
- For sale for $2,100,000.00
- Prospective buyer agreed to sales price
- Disclosure of wind turbine project to buyer
- Buyer backed out of offer
- Seller agreed to 25% discount to Buyer
- Buyer declined discounted offer
- Currently little interest in property in spite of other characteristics of property
Case Study Two - 2007

- Using paired sales analysis - Sales of Seven large tracts of rural land with varying proximity to wind turbines in Taylor County, Texas.

- Sales 1, 2, and 3 compared to Sales 4-7

- Sales occurred between 3-06 & 8-07

- No time adjustment

- Contributory value of improvements deducted from each sale

- All other characteristics considered similar
## Wind turbine on the property

<table>
<thead>
<tr>
<th>Sale Number</th>
<th>Wind Turbine Presence (western Taylor County; 1700+ acres; 3 wind turbines on property; seller reserved “wind rights”)</th>
<th>Price/Acre</th>
<th>Diminution Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Turbines on property</td>
<td>$850.00</td>
<td></td>
</tr>
<tr>
<td>Four</td>
<td>No wind turbines in visual range</td>
<td>$1,290.00</td>
<td>34%</td>
</tr>
<tr>
<td>Five</td>
<td>No wind turbines in visual range</td>
<td>$1,536.00</td>
<td>45%</td>
</tr>
<tr>
<td>Six</td>
<td>No wind turbines in visual range</td>
<td>$1,200.00</td>
<td>29%</td>
</tr>
<tr>
<td>Seven</td>
<td>No wind turbines in visual range</td>
<td>$1,416.00</td>
<td>40%</td>
</tr>
</tbody>
</table>
TURBINES ON PROPERTY

Diminution in value

29%–45%

37% average
## Wind turbine within .2 - .4 miles

<table>
<thead>
<tr>
<th>Sale Number</th>
<th>Wind Turbine Presence (1,110+ acres; Taylor County; 2 wind turbines in within .2 &amp; .4 miles)</th>
<th>Price/Acre</th>
<th>Diminution Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two</td>
<td>Turbines within .2 - .4 miles</td>
<td>$1,000.00</td>
<td></td>
</tr>
<tr>
<td>Four</td>
<td>No wind turbines in visual range</td>
<td>$1,290.00</td>
<td>22%</td>
</tr>
<tr>
<td>Five</td>
<td>No wind turbines in visual range</td>
<td>$1,536.00</td>
<td>35%</td>
</tr>
<tr>
<td>Six</td>
<td>No wind turbines in visual range</td>
<td>$1,200.00</td>
<td>17%</td>
</tr>
<tr>
<td>Seven</td>
<td>No wind turbines in visual range</td>
<td>$1,416.00</td>
<td>29%</td>
</tr>
</tbody>
</table>
TURBINES WITHIN .2 - .4 MILES

Diminution in value is 17% - 35%

26% Average
## Wind turbine within 1.8 miles

<table>
<thead>
<tr>
<th>Sale Number</th>
<th>Wind Turbine Presence (550+ acres in Taylor County, 1 turbine 1.8 miles away)</th>
<th>Price/Acre</th>
<th>Diminution Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three</td>
<td>Turbines within 1.8 miles</td>
<td>$1,016.00</td>
<td></td>
</tr>
<tr>
<td>Four</td>
<td>No wind turbines in visual range</td>
<td>$1,290.00</td>
<td>21%</td>
</tr>
<tr>
<td>Five</td>
<td>No wind turbines in visual range</td>
<td>$1,536.00</td>
<td>34%</td>
</tr>
<tr>
<td>Six</td>
<td>No wind turbines in visual range</td>
<td>$1,200.00</td>
<td>15%</td>
</tr>
<tr>
<td>Seven</td>
<td>No wind turbines in visual range</td>
<td>$1,416.00</td>
<td>28%</td>
</tr>
</tbody>
</table>
Turbines within 1.8 miles

Diminution in value is 15%–34%

25% Average
Diminution in Value Summary

Turbines on property
  Average 37%

Turbines within .2 -.4 miles
  Average 26%

Turbines within 1.8 miles
  Average 25%
Possible Additional Diminution in Value

Additional 15% - 25% diminution in value of property due to the following:
WIND TURBINE INFRASTRUCTURE -
HIGH POWER TRANSMISSION LINE S
SUBSTATIONS
ADDITIONAL TRAFFIC FOR SERVICE OF WIND TURBINE AND POWER LINES
ADDITIONAL ROADS
Market Data and common sense tell us property values are negatively impacted by the presence of wind turbines.
Consider & weigh impact on your property’s overall value when leasing for wind turbines...
THE BIG QUESTION

• Does increased income from wind turbine offset the potential decrease in market value?
IN SOME SITUATIONS, IT WILL, IN OTHERS IT WILL NOT...

MAKE AN INFORMED DECISION WITH A VIEW TO THE FUTURE OWNERSHIP OF THE PRECIOUS RESOURCE OF LAND...
Studies Developed by:

- Gardner Appraisal Group, Inc.
- Austin Valuation Consultants
- Various real estate appraisers and brokers
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