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Visual Aspects of WECs

Riley County, KS

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image is from gray county (295') wecs = wind energy conversion system

Lorn Clement's educational background includes:

- Liberal arts at Middlebury College (emphasis in art and math);
- Undergraduate degrees in environmental science and landscape architecture from SUNY CES&F;
- A master's degree in landscape architecture from KSU;
- A certificate in negotiation from the Harvard Law School's summer Program on Negotiation (Roger Fisher; *Getting to YES*); and
- A J.D. from KU with an emphasis on environmental, natural resources, local government and land use law.

He has served on the Riley County Planning Board for 12 years.

Author

A. Part I. Visual Aspects of WECSs

- Introduction
- Thayer, Hoag, *et al.*: two levels of visual significance
- Bergsjo, *et al.*: four scales of visual influence
- Paul Gipe's aesthetic guidelines for wind power projects
- Guidance from New Zealand – “no worries, mate”
- Guidance from Scotland – SNH
- Visual character of SE Riley County, KS
- Tentative conclusions

B. Part II. Visual Significance of Vertical Elements

- Factors affecting the view
- Denotative vs. connotative meaning
- Examples from Manhattan and Riley County
- Observations regarding scale, context, change and memory

C. Part III. Aesthetics as part of the RBT for LUR in Kansas

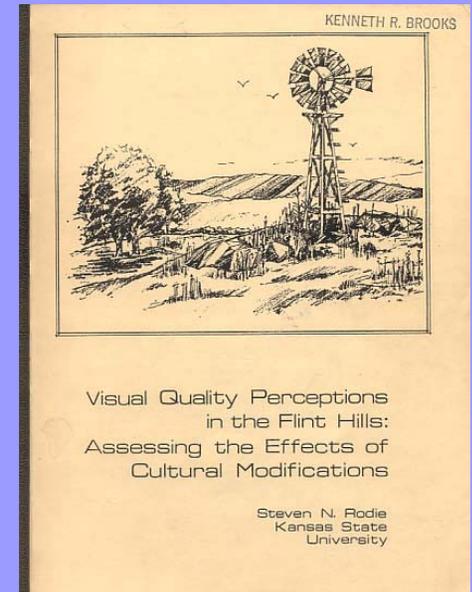
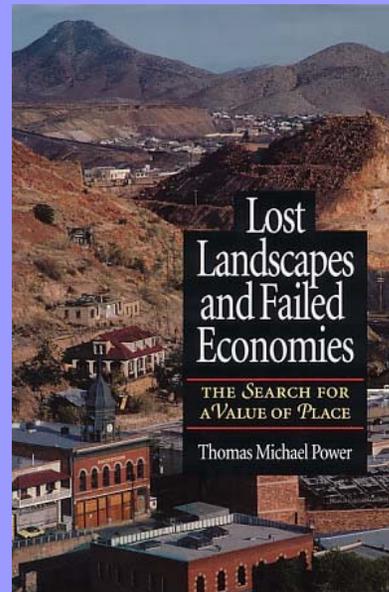
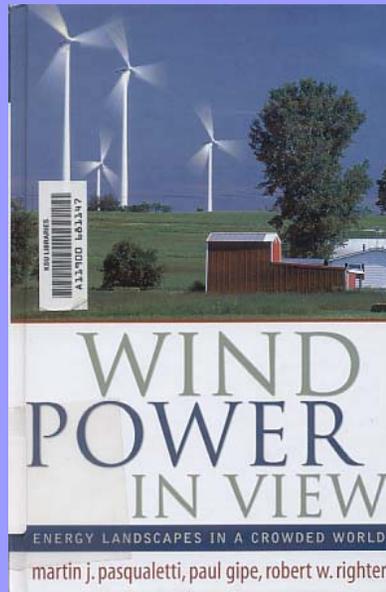
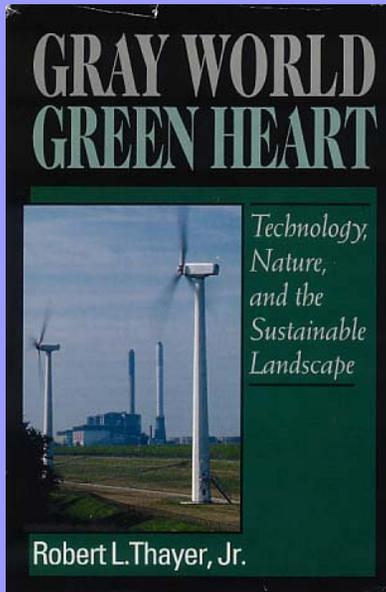
Presentation Outline

- If “beauty is in the eye of the beholder” ... are there no areas of general agreement in human populations regarding the visual impacts of cultural modifications to the landscape, upon which land use regulations may be partly and rationally based?
- Consideration of aesthetic issues is difficult, but not impossible, in the development of reasonable regulations.

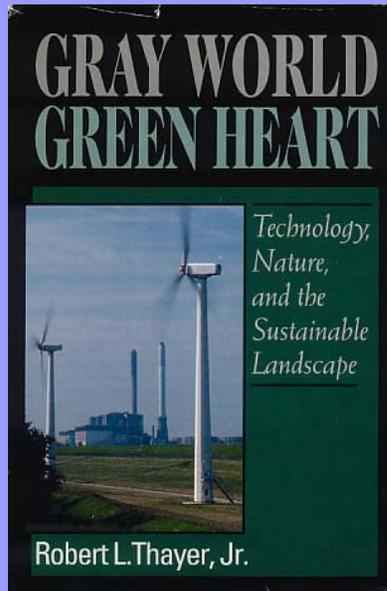
Beauty

- There is an increasingly rich and current literature to review – we can learn a lot from the State of California, Europe, Australia and New Zealand – which have decades of experience.

Research

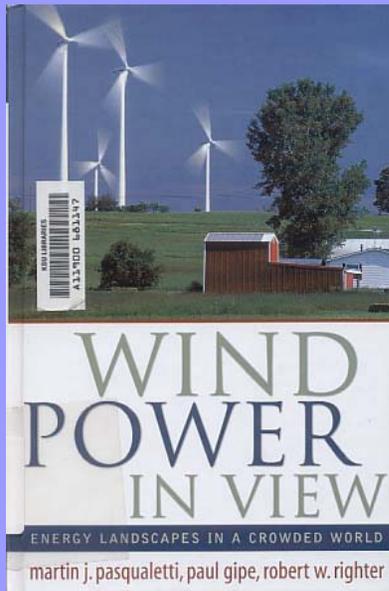


Recent publications



The point of this book is to suggest that a 19th Century world view, with Romantic ideals and an inclination to hide utilities and infrastructure, is at cross-purposes with our need to design and build for a sustainable future, and that we should develop the willingness to look at the technology that we depend on for our way of life.

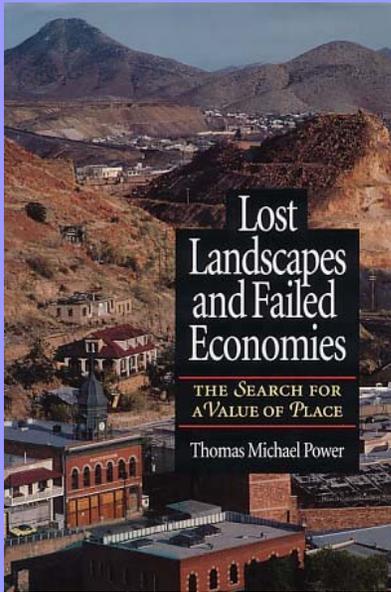
Recent publications



Written by geographers, historians, and other wind energy advocates, this book presents decades of research and current knowledge, and suggests that if located appropriately and carefully, designed well, and regularly maintained, WECSs can make a welcome contribution to our natural/cultural landscapes.

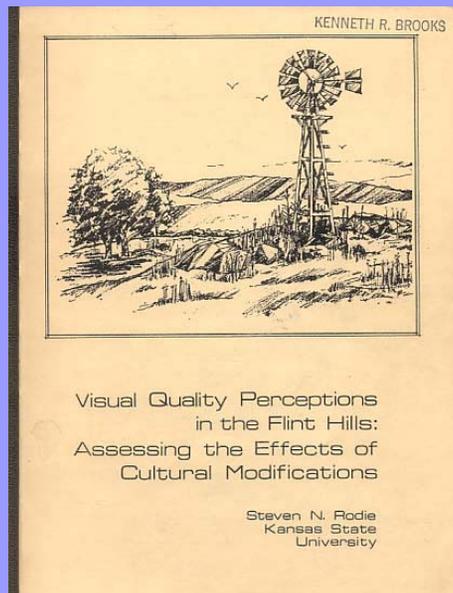
Significant visual change makes it the most contentious issue for siting wind turbines.

Recent publications



The author of this book, an economist, presents research concerning the shifting economic realities of western U.S. communities. Historical reliance on extractive industrial uses of natural resources has created liabilities, now that the local economies are primarily supported by outdoor recreation, tourism and retirees who choose to live there -- all of these place a high value on environmental quality. In the 21st Century, protecting the environment is part of intelligent economic development strategy.

Recent publications



This study attempted to determine how people feel about cultural modifications or changes to the landscape of the Flint Hills. The strongest conclusion regarding the visual effects of things like power transmission lines and buildings in the landscape is that scale relationships influence visual perception and that distance from the viewer to the object really matters as a factor affecting how strongly people feel about landscape change elements.

Recent publications

Many researchers have concluded that there are two fundamentally different levels of visual significance for environmental phenomena, or landscape change elements:

1. Denotative – objective -- seeing and describing the visual characteristics and relationships of physical forms in the landscape; and
2. Connotative – subjective -- the symbolic meanings or mental associations we attach to the physical forms in the landscape.

These operate simultaneously in all of us and allow us to function in the world. Memories combine to construct meaning. We form opinions about whether landscape change elements are welcome or unwelcome intrusions into the landscape. Our interpretations are subject to change with time and experience (meaning can evolve).

Thayer, Hoag, *et al*: levels of visual significance

- Objects such as wind turbines are first seen by the visual perception of the eye, as vertical and moving physical *forms* contrasting with a background of landscape.
- Description of visual characteristics yields an objective listing in terms of size, shape, position, directional aspect, color and texture of surfaces.
- Abstractions of physical entities might be in terms such as linear, planar, mass and void, terms used by artists and designers to describe essential formal characteristics of sculptures or landscape elements with particular visual character.
- Visual and spatial relationships of continuity, balance, *scale*, *proportion* and rhythm can be described in denotative terms.

Level one: denotative meanings

- Second, they are seen and interpreted as *symbolic* of “higher” concepts such as:
 - “artistic expression”
 - “stewardship” “renewable energy”
 - “energy independence”
 - “wildlife habitat destruction”
 - “industrial use” “factories”
 - “tax shelter” “subsidy”
 - “exploitation”
- Environmental interventions or changes are perceived to be inevitable, warranted intrusions into the landscape, or not, depending on culture, values, beliefs, expectations, intentions, *i.e.* a person’s world view.

Level two: connotative meaning

Two levels of visual significance or interpretation

- Denotative meanings --
Description of visual characteristics
 - Connotative meanings --
Symbolic associations, impressions formed by culture, values, intentions
- ... cause landscape change elements to be interpreted as welcome intrusions, or not.

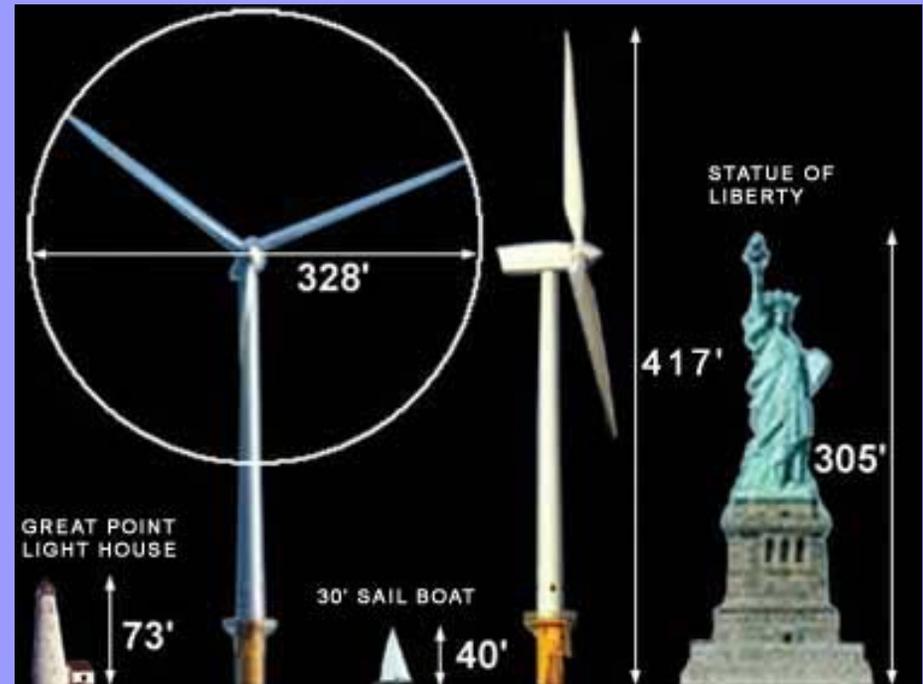


Image source: <http://www.saveoursound.org/images/HtCompare.jpg>

Thayer, Hoag summary

- Many residents in urban areas find recreational uses for rural landscape, or move into the country to be “closer to Nature.” They tend to appreciate the “intrinsic” values of landscape. Continued development of rural areas can upset strong desires for, or expectations of, constancy in the experience of rural landscape.
- “... planners must not be unduly swayed by urban views of the landscape. They must consider the needs and traditions of rural residents as well.” (Hoppe-Kilpper and Steinhäuser, *Wind Power in View*, p. 89-91.) Farmers and ranchers appreciate both the “intrinsic” and “instrumental” values of landscape, but make their living by direct use and manipulation of it (*cf. Tallgrass Ranchers*).

Cultural differences

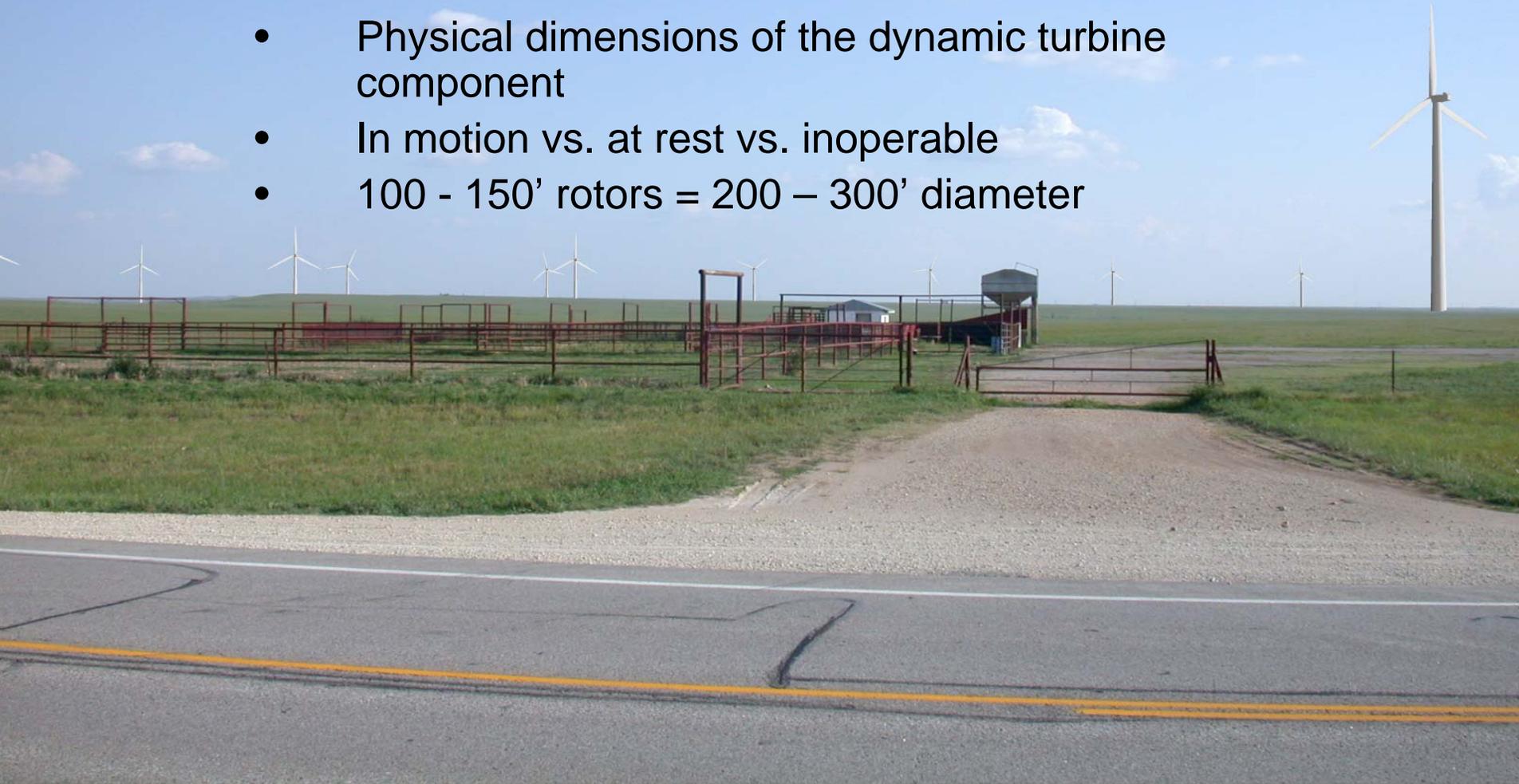
- A 1982 Swedish study defines four scales, or zones, of visual influence for a wind turbine. Typical tower heights were 100'.
- These zones expand concentrically, from the physical dimensions of the rotors, to miles away.
 1. Sweep zone
 2. Visual intrusion zone
 3. Visual dominance zone
 4. Visibility zone
- Note that many European installations and published studies involve wind turbines with a tower height of 200' or less (175' in Germany).

Bergsjö *et al*: scales of visual influence

View From US 54 from Middle of Project - S

Image source: <http://www.zilkha.com/latestprojectsims>

- Sweep zone – defined by the radius of the rotor blade
- Physical dimensions of the dynamic turbine component
- In motion vs. at rest vs. inoperable
- 100 - 150' rotors = 200 – 300' diameter



Zone one: sweep

View From US 54 from East Edge of Project - NW

Image source: <http://www.zilkha.com/latestprojectsims>

- Visual intrusion zone – area in which a unit is perceived as visually intrusive
- About five times the total height
- $350' \times 5 = 1750'$ or $1/3$ of a mile



Zone two: intrusion zone

#19 2 miles North of Rosalia on Flint Hill Rd. looking Southeast.

Image source: <http://www.zilkha.com/latestprojectsims>

- Visual dominance zone – bounded by the maximum distance at which the turbine dominates the field of vision
- About ten times the total height
- $350' \times 10 = 3500'$ or $2/3$ of a mile



Zone three: visual dominance

3 Miles South of US 54 on Gray Rd. - NE

Image source: <http://www.zilkha.com/latestprojectsims>

- Visibility – the unit can be seen easily but is perceived to be part of the distant landscape
- Extends to 400 times the total height
- $350' \times 400 = 140,000'$ or 26.5 miles (?)



Zone four: visibility

Four zones of wind turbine visual influence:

- Sweep zone: 200 – 300 foot diameter
- Visual intrusion zone: 1/3 mile
- Visual dominance zone: 2/3 mile
- Visibility zone: 20 – 25 miles ...
- (Note: For the preceding four images we should know the tower height and distance from camera to subject...)

Bergsjö summary

- “Visual clutter” seems to be a key issue in public acceptance of wind energy conversion systems.
- Absence of clutter can contribute to creating positive associations/interpretations in terms of:
 - visual (objective) description of formal characteristics and relationships;
 - symbolic meanings or associations (subjective) attached to landscape change elements/intrusions
- Avoiding dissonance between the levels might contribute to public acceptance of WECSs.

Clutter

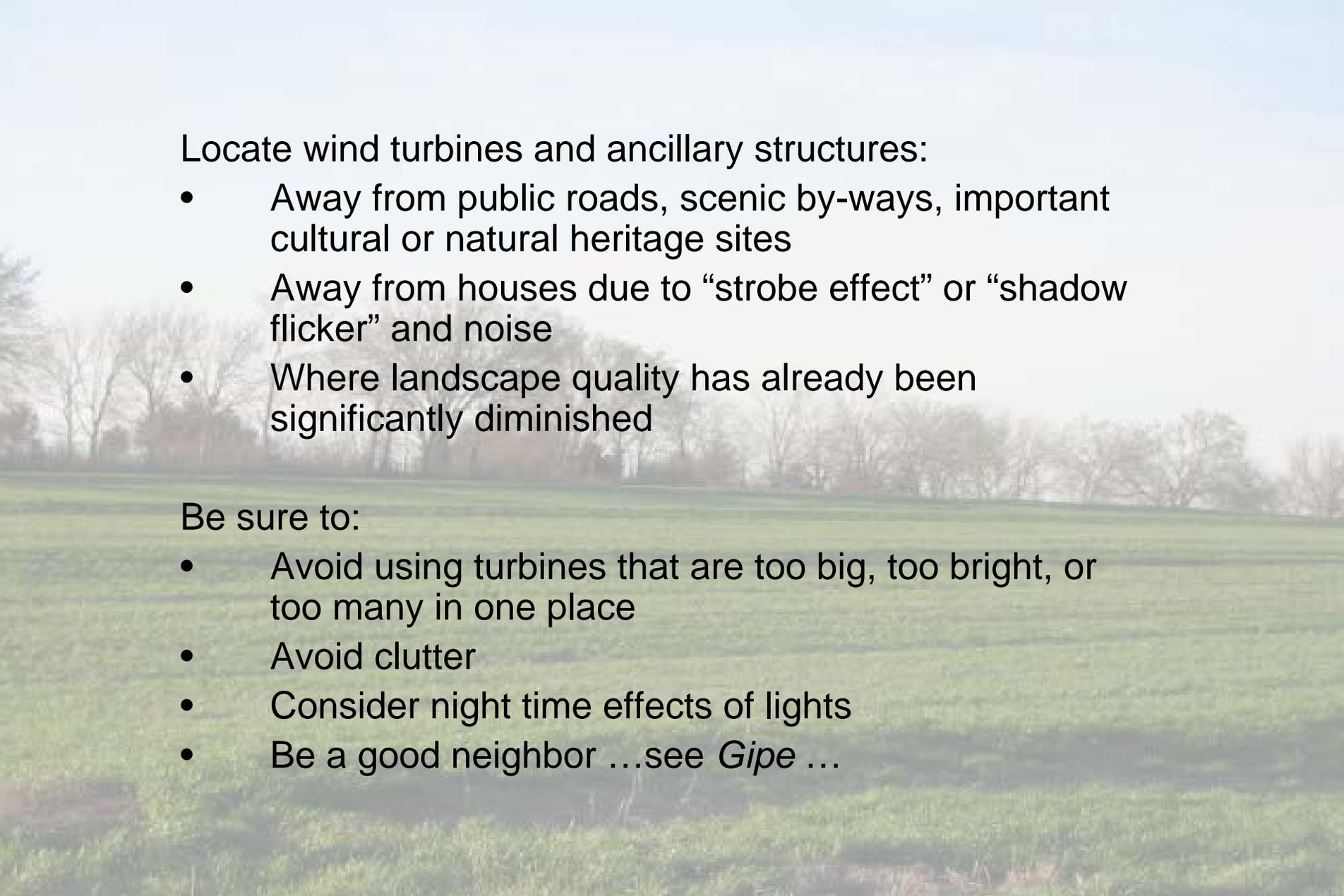
“Clutter” typically consists of:

- overhead transmission lines
- transformers
- substations
- ancillary structures



Image source: <http://www.zilkha.com/whatweredoing>

Clutter



Locate wind turbines and ancillary structures:

- Away from public roads, scenic by-ways, important cultural or natural heritage sites
- Away from houses due to “strobe effect” or “shadow flicker” and noise
- Where landscape quality has already been significantly diminished

Be sure to:

- Avoid using turbines that are too big, too bright, or too many in one place
- Avoid clutter
- Consider night time effects of lights
- Be a good neighbor ...see *Gipe* ...

Recommendations from a visual point of view

Paul Gipe is a life-long advocate, with decades of experience and research-based knowledge. He has an article on aesthetic considerations and guidelines for siting wind energy conversion systems at:

<http://www.ilr.tu-berlin.de/WKA/design.html>

A complete discussion and illustrations for many of these recommendations are in *Wind Power in View*, Chapter 9, by Paul Gipe. It is entitled “Design as if People Matter: Aesthetic Guidelines for a Wind Power Future.”

The following slide lists the headings for his recommendations.

Paul Gipe’s recommendations

- Provide aesthetic uniformity, visual order, distinct units
- “Keep them spinning” to avoid negative message
- Bury intra-project power lines to avoid clutter
- Harmonize structures with each other and terrain
- Control erosion; minimize grading width of roads, size of staging areas and crane pads
- Avoid billboards, logos, high contrast, tower pedestals
- Avoid camouflage painting and aircraft obstruction markings
- Douse security lights at night
- “Always dress them” – keep the covers on nacelles
- Use open spacing to avoid dense visual clutter
- Use proper proportions; respect the land and the landscape
- Remove “headless horsemen,” nonoperating units, “boneyards”
- Practice good housekeeping by regular cleaning, maintenance
- Inform the public or provide access
- Consider the aesthetics of small wind turbines
- In sum – “be a good neighbor”

Paul Gipe’s recommendations

Visual impacts -- scale

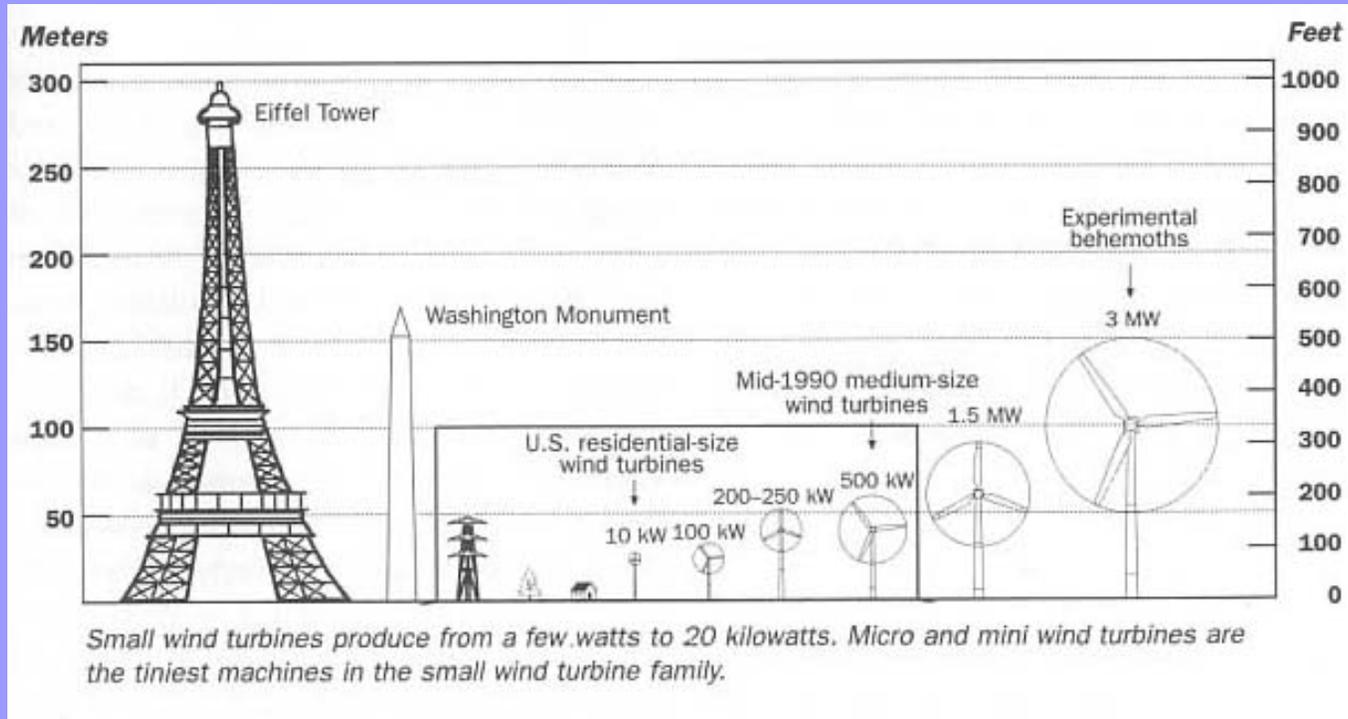


Image source: Paul Gipe, *Wind Energy Basics*, p. 13.

Scale relationships and distance affect visual perception and interpretation; the language used to describe elements in the landscape reveals attitudes and values. Much research involves turbine towers that are 200' or less in height.

Visual impacts -- scale



Issue of scale – human vs. extreme... repeated reports of “out of scale” ... “not in proportion” to humans or the landscape. (Where the land is flat there is no comparison of turbine size to the height of hills.)

(This turbine is ___ feet tall.)

The use of descriptors such as “behemoths” belies a concern of advocates.

Image source: Fig. 3, Kevin Biggar, Energy Efficiency and Conservation Authority, “Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 2”, June 1995.

New Zealand -- EFCA

Visual impacts – focus due to contrast or lights



The human eye can focus and “zoom in” on distant objects, especially lights at night. “The human eye is often drawn to ‘artificial’ vertical features, regardless of the distance, making them seem bigger.”

Image source: Fig. 11, Paul Botha, Energy Efficiency and Conservation Authority, “Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 3”, June 1995.

New Zealand -- EFCA

Visual impacts – alignment on ridges



In hilly areas, visual order can come from a consistent response to the landforms and prevailing wind direction.

Image source: Fig. 8, Courtesy Centre for the Analysis and Dissemination of Demonstrated Energy Technologies, Energy Efficiency and Conservation Authority, "Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 2", June 1995.

New Zealand -- EFCA

Visual impacts from construction



“The large and long loads associated with wind turbine construction require particular road geometry, which may not be totally sympathetic to the local topography, particularly in steep country.”

Image Source: Fig. 18, Erin Roughton, Energy Efficiency and Conservation Authority, “Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 3”, June 1995.

New Zealand -- EFCA

Visual impacts from construction



“the construction phase may involve bringing some oversize loads on-site” ... concerns arise with the size and effects of crane pad sites ...

Image source: Fig. 17, Erin Roughton, Energy Efficiency and Conservation Authority, “Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 3”, June 1995.

New Zealand -- EFCA

Visual impacts from construction



Image source:
Brochure produced by Protect the Flint Hills

Nearby construction in Woodward, OK

Special visual effects from blade rotation:

- Compared to the static stillness of almost all other vertical cultural modifications to the landscape, wind turbines move, or should move, whenever the wind is blowing. This dynamic quality introduces some surprising results.
- Shadow flicker, or strobe effects, can arise within houses, if the turbine is located in a position where the blades pass across the sun, causing a flickering shadow within a room. This potential effect occurs where a turbine is in close proximity to a dwelling, and at very low sun angles (morning or evening hours).
- Location of turbines well away from houses is recommended.

Energy Efficiency and Conservation Authority, "Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 3", June 1995.

New Zealand -- EFCA

Special visual effects from blade rotation:

- Blade glint - the regular reflection of sun off rotating turbine blades - can be a temporary nuisance. Its occurrence depends on a combination of circumstances arising from the orientation of the nacelle, angle of the blade, and the angle of the sun. The reflectiveness of the surface of the blades is also important, and this is to some extent influenced by colour and age of the blade. Matt surface finishes can be specified to minimise effects. Blade glint is an aspect which can be a potential distraction to drivers if roads are aligned towards turbines. The effect can be noticed over considerable distances - as much as 10 to 15km (6 to 9.5 miles).

Energy Efficiency and Conservation Authority, "Energy-wise Renewables; Guidelines for Renewable Energy Developments, Wind Energy: Ch. 3", June 1995, p. 6.

New Zealand -- EFCA



“Scotland is renowned internationally for the quality of its natural heritage, particularly the diversity of its landscapes and outstanding scenery. The experience of traveling through these landscapes is critical to why people enjoy them (and come to visit Scotland) the extensive scale of these valued landscapes is part of their character and attraction.”
(emphasis added)

Scottish Natural Heritage, *Strategic Locational Guidance for Onshore Windfarms*, 02/1/2

SNH Guidance



“As well as contributing to the quality of life for those who live in Scotland, our landscapes are a major economic asset as a basis for the tourism industry, which is Scotland’s largest employment sector.” (emphasis added)

Scottish Natural Heritage, *Strategic Locational Guidance for Onshore Windfarms*, 02/1/2

SNH Guidance



“Concern for the future of this industry presents an economic argument to avoid adverse impacts, especially those on wild and dramatic aspects of the Scottish landscape which are most attractive to tourist visitors.” (emphasis added)

Scottish Natural Heritage, *Strategic Locational Guidance for Onshore Windfarms*, 02/1/2

SNH Guidance

Visual character of southeast Riley County

Location of photography 16 December 2003

McDowell Creek Road >

Konza Prairie Overlook >

Power line >

K - 177 >

< Chestnut Lane Farm

< Glasscock residence

< Deep Creek Road

British Pasture

(2900 acres)

mile marker 320

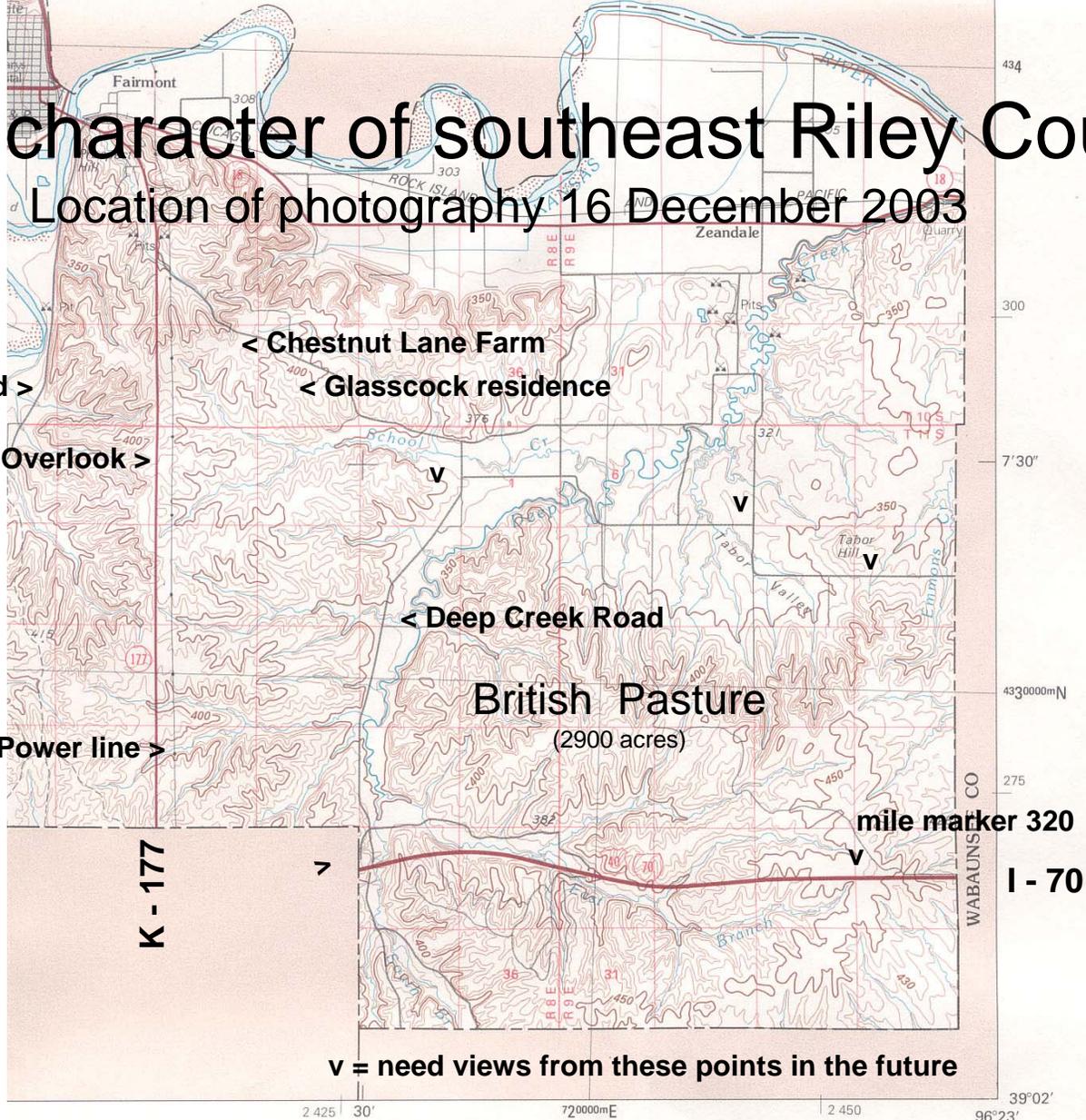
I - 70

v = need views from these points in the future



RILEY CO., KANS.
N3902 - W9623

1980





View from K-177, across from the Konza Prairie Scenic Overlook, looking east to the British Pasture (16 December 2003).



View from Chestnut Lane Farm, Deep Creek Road, looking southeast to the British Pasture (16 December 2003).



View from Glasscock's back porch, Deep Creek Road, looking southeast to the British Pasture (16 December 2003). Elevation difference from valley floor to ridgeline is 100 meters.



View from McDowell Creek Road, two miles south of K-177 bridge, looking northeast (16 December 2003). Elevation of ridgeline is plus 100 meters.

1. The scale of new WECSs is huge, and *they are dynamic*.
2. Unanticipated adverse impacts can be severe.
3. The 1000' notification rule makes no sense when WECSs can be seen easily for miles.
4. The Flint Hills landscape has a strong image but is fragile.
5. The extent and cohesion of the Flint Hills landscape is key to regional quality of life and experience.
6. Tourism is important and will grow. Memory is powerful.
7. Environmental protection and economic development are **not** at cross-purposes in the Flint Hills.
8. The presence of WECSs in southern Riley County could change its visual character dramatically, and so alter the image and identity of Manhattan, and the region.
9. There is a rational basis for strict regulations that limit wind turbine height; restrict the number built in any one set or unit; require setbacks; and require location in significantly disturbed areas, in order to reduce negative visual impacts.
10. There are other aesthetic issues to address (acoustics).

Tentative Conclusions

Pasqualetti, ch. 8 *Wind Power in View*

...

In the mid-1980s he became “fascinated by how quickly and completely the wind turbine installations transformed a desolate patch of real estate into an evocative landscape of power.”

p. 158

The wind turbines “became the dominant landscape feature at the entry point to the Palm Springs area.”

p. 159

This seems to be sound advice:

“Among the things the wind industry must do is to minimize intrusion, especially in favored places, regardless of the technical [regulatory/contractual] attractions such locations offer.”

p. 170

Tentative Conclusions

1. Thayer and Freeman, “Altamount: Public perceptions of a wind energy landscape,” *Landscape and Urban Planning*, vol. 14 (1987) pp. 379 -398.
2. Thayer and Hansen, “ Wind on the Land,” in *Landscape Architecture*, vol. 78, no. 2 (March 1988) pp. 68 -73.
3. Paul Gipe, Chapter Nine. “Design as if People Matter: Aesthetic Guidelines for a Wind Power Future,” in Pasqualetti, Martin J., Paul Gipe, and Robert W. Righter, eds., 2002. *Wind Power in View: Energy Landscapes in a Crowded World*, San Diego: Academic Press, pp. 173-212.
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9. Kirkpatrick Sale. 1980. *Human Scale*. New York: Putnam's Sons.
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11. Kevin Lynch. *Image of the City*
12. Kevin Lynch, *Managing the Sense of A Region*
13. Fritz Steele, *The Sense of Place*
14. Edward Relph, *Place and Placelessness*

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16. Edmund Penning-Roswell and David Lowenthal, eds., *Landscape Meanings and Values*
17. John Jakle, *The Visual Elements of Landscape*
18. Tadahiko Higuchi, *The Visual and Spatial Structure of Landscape*
19. Ian H. Thompson, *Ecology, Community and Delight; Sources of values for landscape architecture*
20. William Least Heat-Moon, *PrairieErth*
21. Thomas Michael Power and Richard N Barrett (2001) *Post-Cowboy Economics: Pay and Prosperity in the New American West, Island Press.*

References / Sources

Scale

Visible

Qualitative

Change

Memory



Scale

Visible

Qualitative

Change

Memory



Scale

Visible

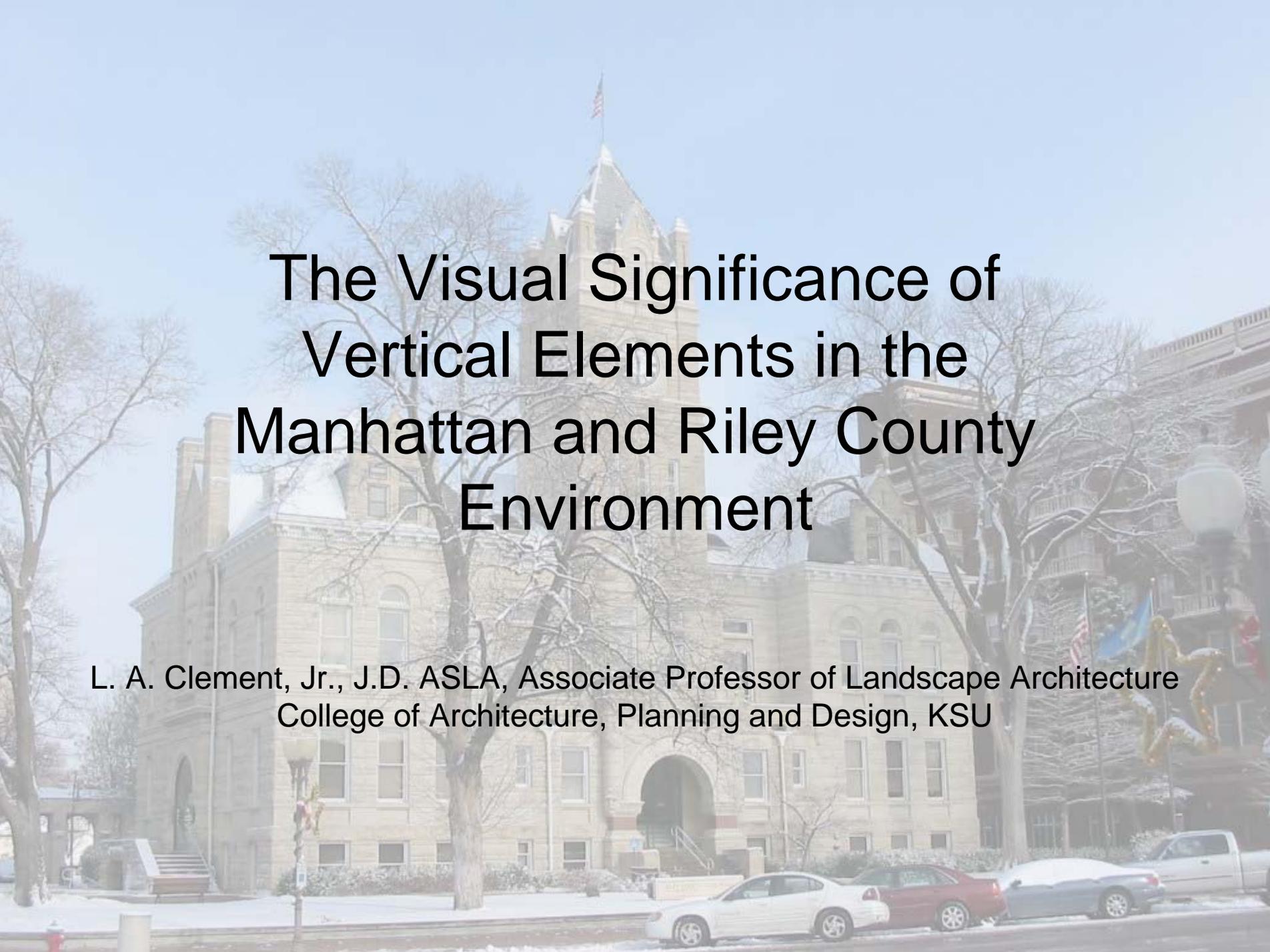
Qualitative

Change

Memory



125'



The Visual Significance of Vertical Elements in the Manhattan and Riley County Environment

L. A. Clement, Jr., J.D. ASLA, Associate Professor of Landscape Architecture
College of Architecture, Planning and Design, KSU

Environmental Factors Affecting the View

Different environmental conditions for viewing will affect the degree of contrast seen, the perception of surface textures and color, and otherwise affect visual impressions of objects.

Viewing factors include:

1. Season of the year;
2. Time of day (lights at night);
3. Sun angle relative to position and orientation of objects and surfaces;
4. Wind speed;
5. Precipitation;
6. Temperature and humidity.

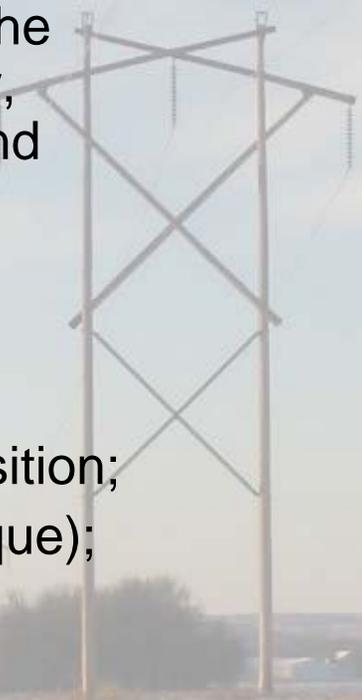


Position Factors Affecting the View

Differences in position between object and viewer will affect the degree of contrast seen, the perception of surface textures and color, relationships of scale and proportion, and otherwise affect visual impressions of objects and scenery.

Positions can vary in terms of:

1. Superior, normal, or inferior viewing position;
2. Angle of view or approach (frontal, oblique);
3. Still or moving observer (speed);
4. Distance to the object;
5. Foreground, middle ground, background position of object(s) viewed;
6. Central position versus edge position;
7. Viewing from outside/inside a field of objects.



Thayer, Hoag, *et al*

There are two levels of visual significance for cultural modifications to landscape:

1. Denotative – objective descriptions of physical forms -- simply the visual characteristics of form; size, shape, color, texture; and relationships such as proportion and scale.
2. Connotative – subjective interpretation and evaluation of landscape change elements, seen as welcome or unwelcome intrusions (inevitable or unwarranted) due to attached symbolic concepts or meanings -- dependent on values, beliefs (world view), expectations, intentions, etc.



Cultural Differences

It seems, in very general terms, that there are two prevalent attitudes towards landscape change as a result of cultural modifications (urban vs. rural):

Many residents in urban areas find recreational uses for rural landscape, or move into the country to be “closer to Nature.” They tend to appreciate the “intrinsic” values of landscape. Continued development of rural areas can upset strong desires for, or expectations of constancy in the experience of the rural landscape.

“... planners must not be unduly swayed by urban views of the landscape. They must consider the needs and traditions of rural residents as well.” (Hoppe-Kilpper and Steinhäuser, *Wind Power in View*, p. 89-91.) Farmers and ranchers appreciate both the “intrinsic” and “instrumental” values of landscape, but make their living by direct use and manipulation of the land.

Buildings in the city



Visual significance:

1. Very tall cylindrical mass (200'), white, very slight taper to top, black banding at top.
2. Heat for the campus / community landmark / pollution of the air?

(Note that KSU is in compliance with EPA regulations ... Martin Snyder .. 01.12.04)

Gateways -- spatial boundaries



Visual significance:

1. Pairs of stone pillars; square in plan, articulated tops; solid versus veneer material.
2. Threshold to campus or the Student Union, both with human scale / town -- gown confrontations?

Buildings in the city



Visual significance:

1. Broad solid mass, rectangular in plan, a tower centered at the front (70' tall +/-), pyramidal volume on top, and at the very top waving red, white and blue seen against the sky.
2. Justice for the community / United States of America / oppressive government?

Signs in the city



Visual significance:

1. Flat thin plane with curved top (45' tall +/-), green background, white letters. Lights at night.
2. Historic landmark / founding family of the community / outdated theater?

Old K-177 bridge supports



Visual significance:

1. Flat concrete planes parallel to the river, spreading bracketed top.
2. Art Deco style /artistic entry feature or cultural opportunity for the city / obsolete vandalized structures?

Locally-owned industry



Visual significance:

1. Cylinders (60' tall +/-), round in plan, joined in pairs, linked with a diagonal piece to a lower block or mass.
2. Many jobs, prosperity / source of pollution?



(Note that Shilling Construction is in compliance with EPA regulations ... Mike Shilling .. 01.07.04)

Buildings in the county



Visual significance:

1. Simple rectangular plan, gable-ended volume for sanctuary; graduated tower (50' tall +/-), white siding, detailed edges, important void with pointed arches for bell.
2. Source of harmony / source of strife and conflict?

Silos



Visual significance:

1. Solid mass, curved tops, clean and blue, 90' +/-, weathered concrete, gradations of shade and shadow.
2. Storage of livestock feed / heavy debt?



High-tension powerlines



Visual significance:

1. Linear structures, in pairs, with diagonal cross-braced members.
2. Essential electric power / blight, clutter on the land?

Cell/communications towers



Visual significance:

1. Very narrow linear segments, thin components, articulated top.
2. Telephones and radios that we need / enjoyable Christmas displays / blight on the land?

Cell/communications towers



Visual significance:

1. Very narrow linear segments, open structure, articulated top.
2. Telephones that we need / blight on the land?

Water towers/tanks



Visual significance:

1. Solid mass, curved tops; one short (70' X 35'), one tall with support struts.
2. Safe municipal water / domination of landform?



Water towers/tanks



Visual significance:

1. Linear cylinders; one tall with uniform diameter; one taller with wider tank on top.
2. Safe municipal water / domination of landform?

Miller Ranch water tower



Visual significance:

1. Linear cylinder with round tank on top; 165' height (130' + 35'); 50' diameter tank; 28' diameter base. (... Peter Arnesto .. 01.07.04)
Small constant red light on top at night; daytime white blinking strobe light.
2. Safe municipal water / domination of landform?

Looking north on a winter afternoon; viewing distance 2.5 - 3 miles; base of tower is + 60 meters in elevation.

Miller Ranch water tower



The visual character of our environment is changing and in turn changing the community image and identity – an important part of its sense of place (and our “quality of life”). Cumulative impacts of landscape interventions, particularly those caused by building in conspicuous locations, are accelerating the rate of change, and are arguably positive or negative. Proposed wind turbines are now 2 ½ times this water tower’s height and +½ the diameter of its base.

Are these interventions:

Sculpture on the land?

Signs of progress?

Inevitable changes?

Unwelcome intrusions?



Gateway to Manhattan, KS

I-70 traveler's impression of the Flint Hills Region

At Montezuma there is no sense of scale for nearby hills.

90% of our perception of the environment is visual,
but memory can override sight.

Landscape of *prairie* ...

... landscape of *power* ... ?

Scale .. Visible .. Qualitative .. Change .. Memory

“The key-log which must be moved to release the evolutionary process for an ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”

Aldo Leopold, *A Sand County Almanac* (1966)

“... we show that environmental protection, rather than threatening economic well-being, enhances welfare and protects the very source of the economic vitality the Mountain West enjoys ... the change in regional industrial structure – the decline in natural resource [exploitation] and other goods-producing industries and the growth of services and trade – has not damaged the regional economy.”

Preface

Thomas Michael Power; *Post-Cowboy Economics: Pay and Prosperity in the New American West* (2001)

“The areas on the Great Plains that have been growing have been either large urban areas (cultural and commercial amenities) or areas on the Plains with significant natural amenities (e.g. Black Hills, counties along the Missouri, etc.).”

“So protecting the livability and natural amenities of an area are central to long run economic development and vitality. Going after short-term enhancements of the tax base or land rents to a minority of citizens at the expense of natural amenities can be a disastrous long-term strategy. In the desperate pursuit of short-term gain, the long term potential of the area is compromised.”

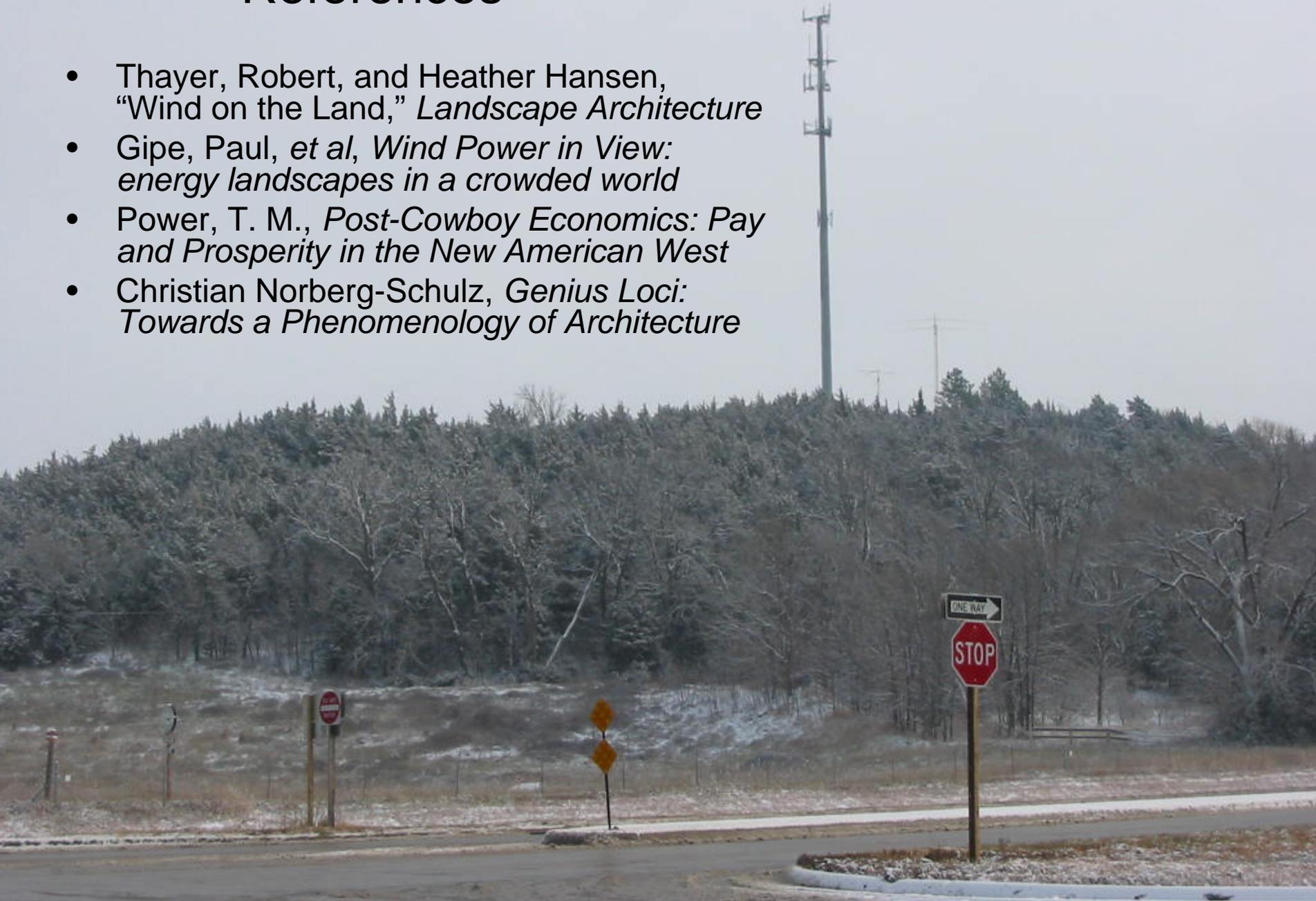
Thomas Michael Power, e-mail

“Among the things the wind industry must do is to minimize intrusion, especially in favored places, regardless of the technical [regulatory/contractual] attractions such locations offer.”

Pasqualetti, *Wind Power in View*

References

- Thayer, Robert, and Heather Hansen, "Wind on the Land," *Landscape Architecture*
- Gipe, Paul, *et al*, *Wind Power in View: energy landscapes in a crowded world*
- Power, T. M., *Post-Cowboy Economics: Pay and Prosperity in the New American West*
- Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*



Visual Aspects of WECSs

Part III: Aesthetics as part of the
Rational Basis Test for regulating
land use in Kansas

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Legal authority for regulations based partly on aesthetics

- *Berman v. Parker*
- “the concept of public welfare is broad and inclusive. The values it represents are spiritual as well as physical, aesthetic as well as monetary.”
- 348 U.S. 26, 38 (1954)

Legal authority for regulations based partly on aesthetics

- *Oregon City v. Hartke*
- It is “not irrational for those who live in a community ... to plan their physical surroundings in such a way that unsightliness is minimized.”
- 240 Or. 35, 47, 400 P.2d 255, 263 (1965)

Legal authority for regulations based partly on aesthetics

- *Johnecheck v. Bay Township*
- Township had refused to permit construction of 300' tall WECS on the ground that they were inconsistent with the land use plan which sought to preserve the rural character and scenic viewscapes of the area.
- The court held that exclusion of industrial scale turbines was consistent with the constitutions of the United States and the State of Michigan, and did not constitute “exclusionary zoning” because the land use plan continued to allow individual residential generators of a much more modest height.

Legal authority for regulations based partly on aesthetics

- *Johnecheck v. Bay Township*
- Aesthetic concerns are a legitimate governmental interest sufficient in themselves to support the Zoning Ordinance's restriction on wind turbine generators in the Township. Note 4.
- ___ F. Supp. ___ (W. Dist. Mich.; S. Div.) # 1:02-CV-71 Sept. 24, 2003

Legal authority for regulations based partly on aesthetics

- *Johnecheck v. Bay Township*
- Footnote 4. ... the record ... reflects recognition by the Township officials of the integral relationship between aesthetics and the Township's tourism-related economic base, as well as property values. In other words, the Township's actions are not a function of mere subjective "taste," but proceed from genuine respect for and appreciation of the natural beauty and rural character of the area, and a desire to preserve and promote those qualities for the common good – all legitimate matters of governmental regulation.

Legal authority for regulations based partly on aesthetics

- *Blockbuster Video, Inc. v. City of Overland Park*
- In *Robert L. Rieke Bldg. Co. v. City of Overland Park*, 232 Kan. 634, 642, 657 P.2d 1121 (1983), our Supreme Court recognized a current trend to permit regulation for aesthetic reasons.
- We also note K.S.A. § 12-755 specifically provides that a city may adopt regulations which “control the aesthetics of redevelopment or new development.”
- 948 P.2d 179 (Kan. Ct. App. 1997)



Legal authority is established. Aesthetics can contribute to the preservation of our natural and cultural heritage, and help sustain our local economies. Don't we have an ethical obligation to regulate land use for the long term common good?