Reconnaissance Level Site Assessment
NPPD Ainsworth Case Study

November 13, 2007
National Wind Technology Center
Golden, Colorado

Dr. Dale Strickland
Western EcoSystems Technology, Inc.
Cheyenne, Wyoming
Project Description

• Owned and operated by Nebraska Public Power and Irrigation District
• 36 wind turbines
• Capacity of 59.4 megawatts
• 8,300 acres of privately owned land
• Shortgrass prairie in Sandhills of North-central Nebraska
Objective

Objective: Evaluate environmental issues associated with development of a wind facility at this site and determine if there are potential major environmental issues.
Methods

• Reconnaissance level investigation relying on past research, existing site inventories, input from agencies, and other relevant literature. On site visit to evaluate landcover, vegetation, topography, ridge aspect, water bodies, etc.
Analysis

• Subjective evaluation of the potential for the occurrence and impacts to federal and state endangered, threatened, candidate and proposed species; migratory birds; other species of concern.
Predictions

• Based on the location, site characteristics, existing data for the site, including the results of several studies (avian use, auditory and fatality surveys) conducted in the region, and fatalities at wind facilities at similar sites the proposed wind plant should not have a significant impact on state/federally listed species, migratory birds, or general wildlife.
Fatality Monitoring Goals

• Document bird and bat fatalities at the developed wind farm by species.
• Estimate annual bird and bat fatalities attributable to the wind farm.
Survey Methods

- All turbines were searched approximately once every 14 days during the spring migration (March 13 – May 13), summer breeding season (May 14 – August 11), and fall migration (August 12 – November 4).
- Square search plots measuring 220 m were centered on each turbine and meteorological tower.
- Transects were established 12 m apart throughout the search area.
- Five carcass removal trials conducted with approximately 10 bird carcasses of two size classes (five small, and five medium to large) distributed within the carcass removal plots for each trial.
- Searcher efficiency trials conducted once per season using 10 birds in two size classes.
Analysis

- The estimate of the total number of wind facility-related fatalities was based on:
  - Observed number of carcasses found during standardized carcass searches.
  - Searcher efficiency expressed as the proportion of planted carcasses found by searchers.
  - Non-removal rate expressed as the length of time a carcass is expected to remain in the study area and be available for detection by the searchers.
Results

• 27 bird carcasses representing 14 species and 2 unidentified species. Estimated fatality rate of 4.10 birds /turbine/year or 2.49 birds/MW/year (0.12 raptors/turbine or 0.07 raptors/MW)

• 16 bat carcasses representing 3 species and one unidentified species. Estimated fatality rate of 1.91 bats/turbine/year or 1.16 bats/MW/year
Raptors

# Raptor Fatalities / MW

Wind Project

Agriculture

Ag / Grass / CRP

Forest

Grass / Steppe

WEST, Inc.
Conclusions

• Quantitative predictions were not made for birds or bats
• General avian predictions were reasonable and supported by fatality data
• An avian fatality prediction based on type average would have been reasonably close to outcome
• Bat fatalities less than type average (1.16 vs. 2/MW/yr)
Questions?