

Avian Power Line Interactions

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NW Wind Energy & Wildlife Workshop



Avian Power Line Interaction Committee (APLIC)

- ▶ Formed in late 1980s to address whooping crane collisions
- ▶ Members include over 40 utilities, RUS, NRECA, EEI, and USFWS
- ▶ Research, education, outreach
 - ▶▶ Avian Protection Plan Guidelines
 - ▶▶ Electrocution and collision manuals
 - ▶▶ Short courses
 - ▶▶ Meets twice annually
 - ✓ Fall 2011 meeting – San Diego, CA
- ▶ www.aplic.org

How Electrocution Occurs

- ▶ Phase-to-phase contact
- ▶ Phase-to-ground contact
- ▶ Most electrocutions occur on equipment poles



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Factors Influencing Electrocution Risk

- ▶ Pole configuration
- ▶ Species
- ▶ Habitat
- ▶ Prey
- ▶ Season
- ▶ Weather
- ▶ Proximity to nests
- ▶ Raptor populations
- ▶ Behavior
- ▶ Age/experience



Wet vs. Dry Feathers

Dry feathers

- ▶ Act as insulation
- ▶ Electrocutation can occur from wrist to wrist if feathers are dry

Wet feathers

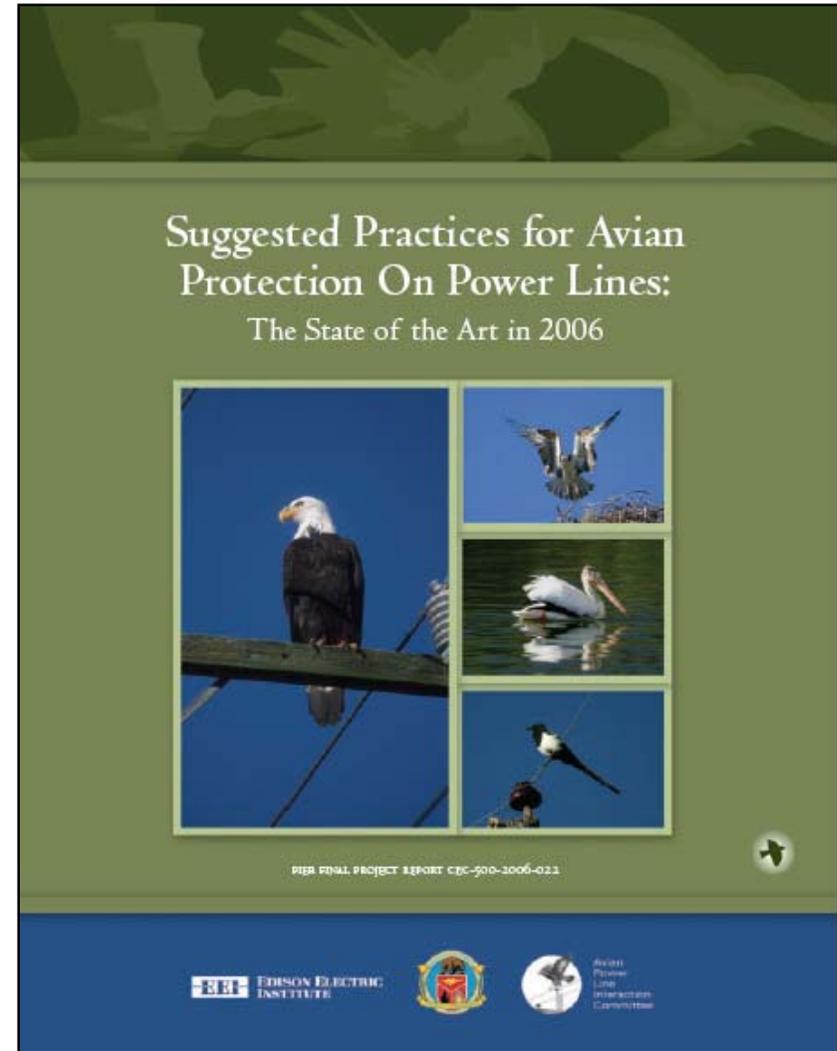
- ▶ Can be conductive
- ▶ Electrocutation can occur from wingtip to wingtip if feathers are wet (yet less likely than skin-to-skin)



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APLIC Guidance

- ▶ 2006 *Suggested Practices*
- ▶ Avian-safe construction:
 - ▶▶ 60-inch horizontal separation and 40-inch vertical separation
 - ▶▶ Covers may be used as alternative to separation



Reducing Electrocutions

- ▶ Avian-safe new construction
- ▶ Reframing existing poles
- ▶ Covering conductors and/or equipment



Retrofitting

- ▶ Significant improvements in technology in past 5 years
- ▶ Covers more effective than perch discouragers
- ▶ Utilities should carefully assess cover types before using
- ▶ More complex than it appears



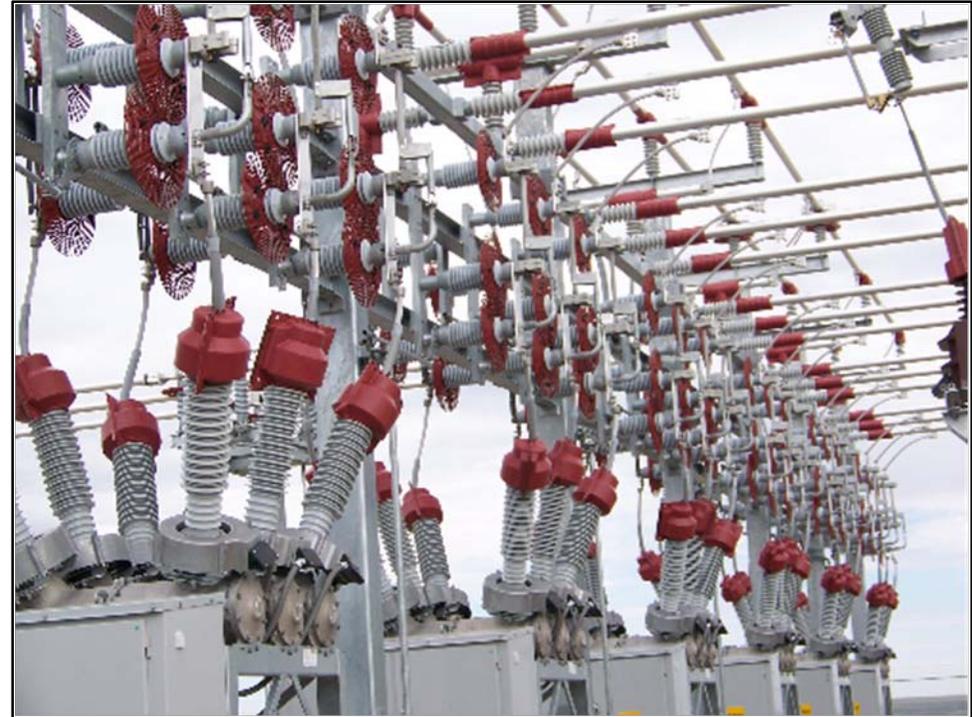
PacifiCorp Risk Analysis & Proactive Retrofitting

- ▶ Risk assessment and follow-up surveys
 - ▶ 10 years, >100,000 poles surveyed in 6 states
- ▶ Data analysis
 - ▶ Mortality rates
 - ▶ Quantification of retrofitting benefits/reductions in mortality rates
 - ▶ Effectiveness of various retrofitting/construction techniques
 - ▶ Factors contributing to mortality risks
 - ▶ Effectiveness of risk assessment methods
 - ▶ Eagle mortalities across different age classes
 - ▶ Effectiveness of perch discouragers and correlations with electrocution risk



Substations

- ▶ May also pose electrocution risks
- ▶ Species (red-tailed hawk, great horned owl, corvids)
- ▶ Much more difficult to retrofit
 - ▶▶ Cost
 - ▶▶ Large numbers of customers
 - ▶▶ Obtaining outages may be difficult or not possible
 - ▶▶ Requires extensive planning
- ▶ Covers typically used rather than framing



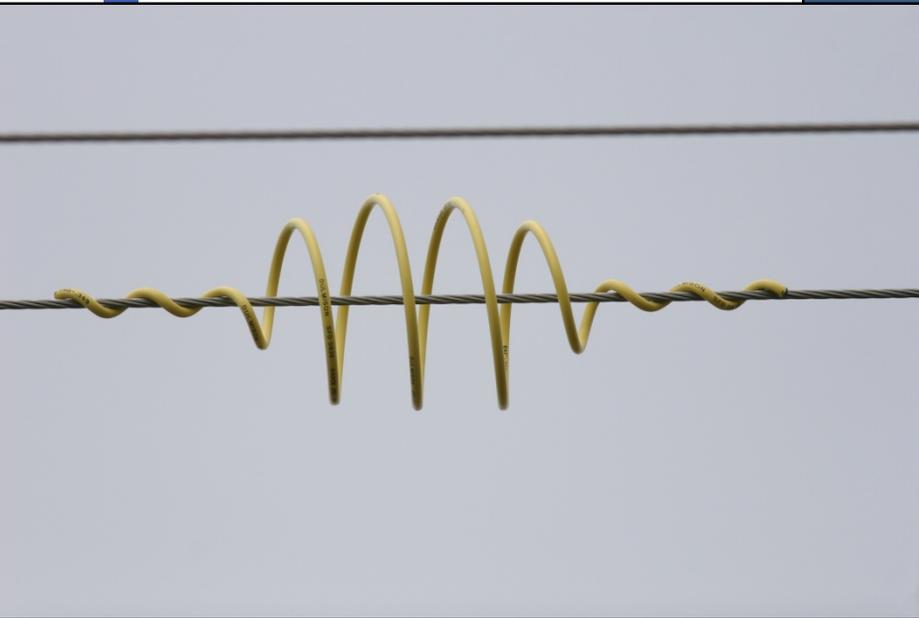
Factors Influencing Collision Risk

- ▶ Species
- ▶ Flight altitude
- ▶ Habitat/wetlands/water crossings
- ▶ Visibility
- ▶ Line configuration



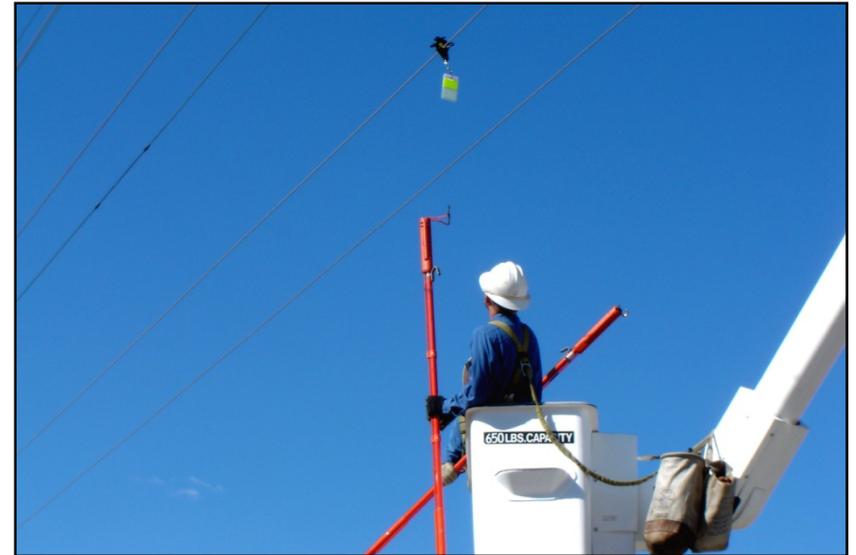
Reducing Collisions

- ▶ Line siting (new lines)
- ▶ Line markers (new and existing lines)



Avian Protection Plans (APPs)

- ▶ APP Guidelines released in 2005 by APLIC and USFWS
- ▶ Contain 12 principles:
 - ▶▶ Corporate policy
 - ▶▶ Training
 - ▶▶ Permit compliance
 - ▶▶ Construction design standards
 - ▶▶ Nest management
 - ▶▶ Avian reporting system
 - ▶▶ Risk assessment methodology
 - ▶▶ Mortality reduction measures
 - ▶▶ Avian enhancement options
 - ▶▶ Quality control
 - ▶▶ Public awareness
 - ▶▶ Key resources for troubleshooting



Questions?

