

Wind 101

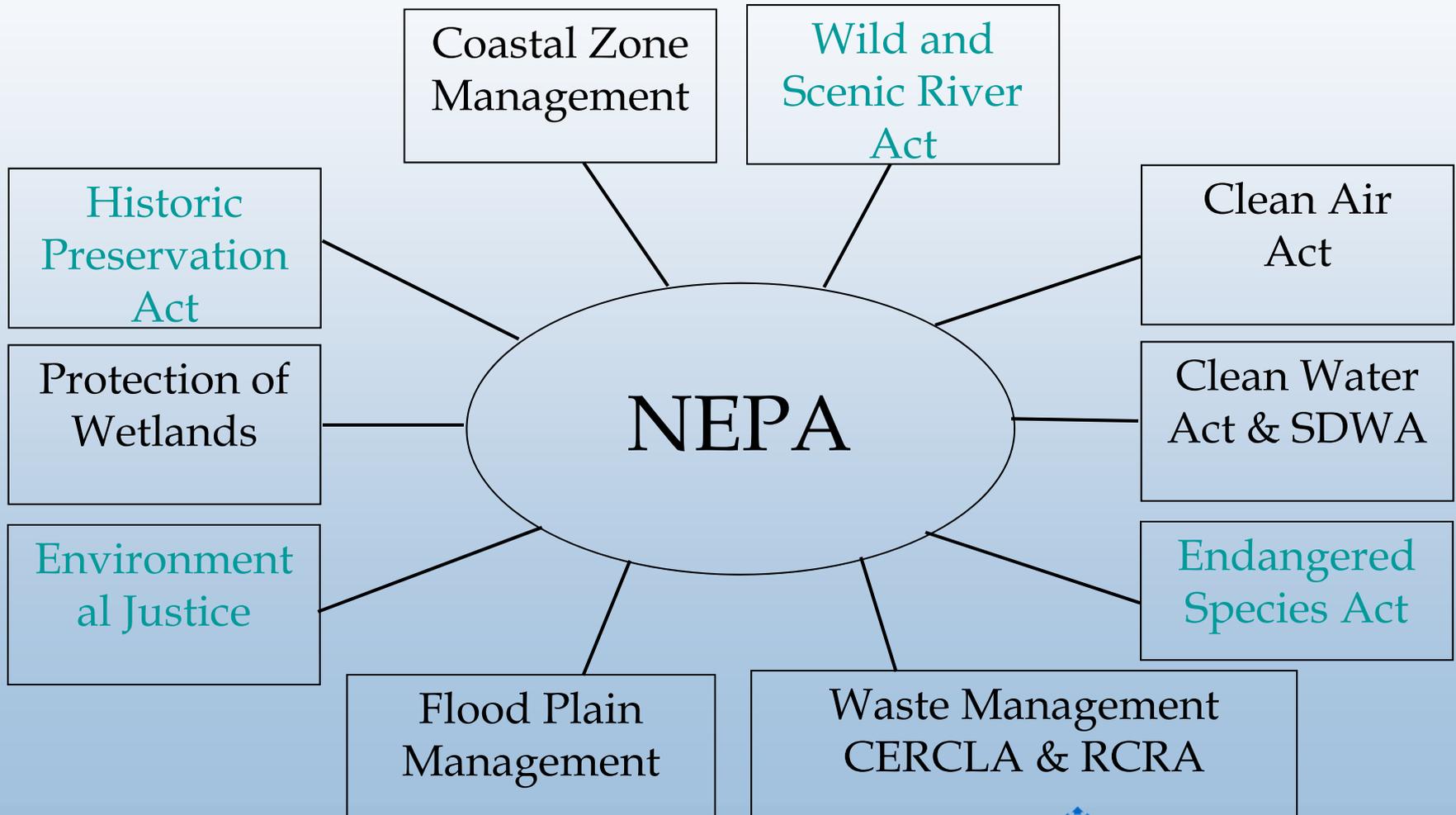
Environmental Review and Permitting



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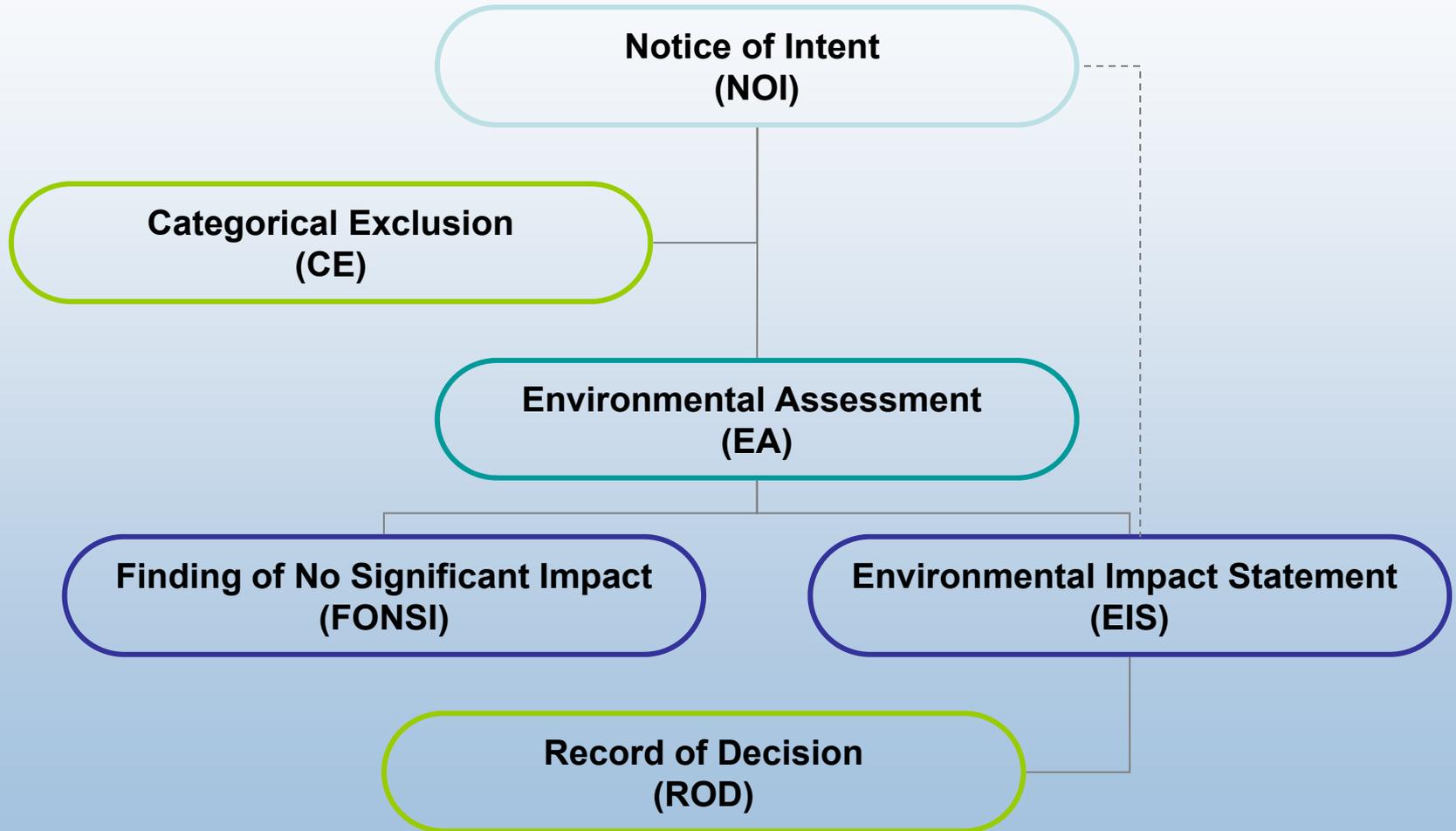
Relationship to Other Federal Laws/Regulations



NEPA Drivers (a.k.a “Triggers”)

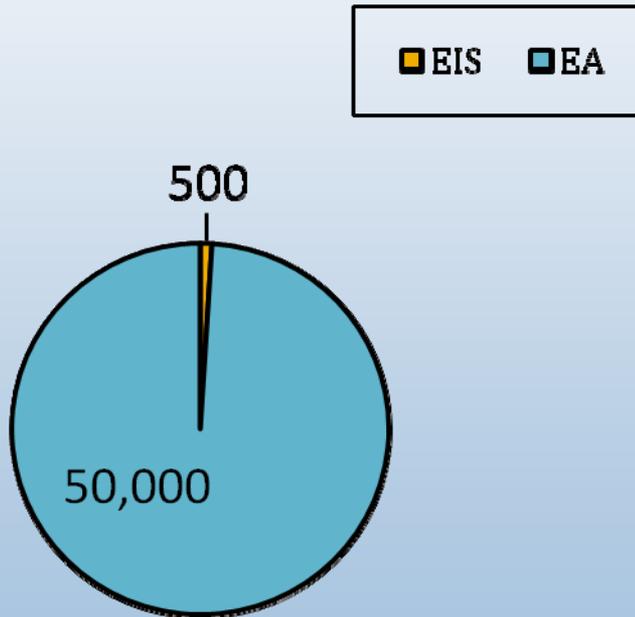
- Federal actions include projects and programs that are:
 - **Regulated**
 - Army Corps of Engineers
 - **Section 10, River & Harbors Act (navigable waterways)**
 - **Section 404, Clean Water Act (wetlands)**
 - Endangered Species Act
 - **Approved**
 - **Bureau of Land Management ROW Grant**
 - **US Forest Service Special Use Permit**
 - **Western Area Power Administration (interconnect)**
 - **Financed**
 - Federal Highway Administration
 - **Assisted**
 - Federal Emergency Management Agency
 - **Conducted**
 - Department of Homeland Security
 - National Park Service

The Formal Process



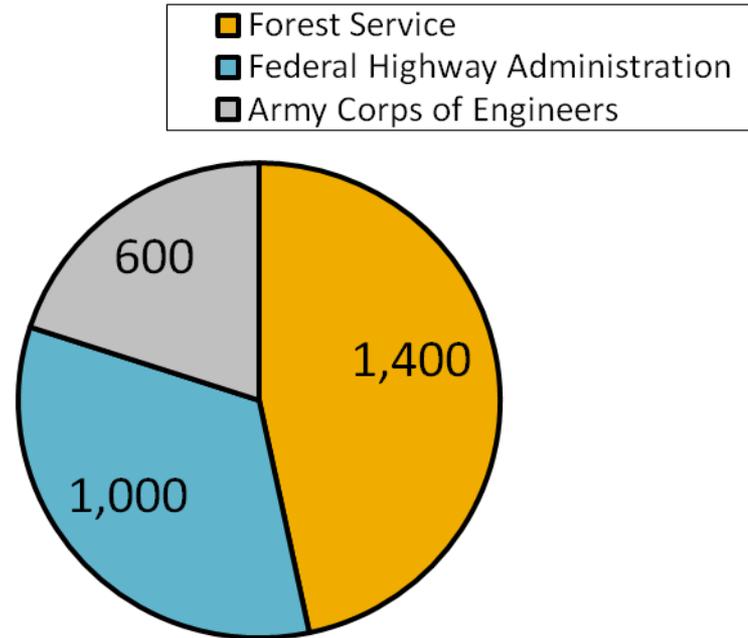
NEPA Statistics

Average Annual Submittals



Note: Includes draft, final, and supplementary documents

Number of EIS reports Filed Between 1994 - 2004



Step One: Purpose & Need

- Develop a purpose & need statement for the proposed action that satisfies the mission of involved agency
 - Meet energy demands
 - Preserve and enhance recreation opportunities
 - Other?

Step Two: Affected Environment

Physical Description

- Geography (site location)
- Meteorology/Weather
- Wind
- Geology
- Soils
- Hydrology
- Tides

Biological Resources

- Vegetation
- Wildlife
- Fisheries
- Threatened & Endangered Species
- Wetlands
- Habitat Disturbance

Historic Resources

- Historical data/ reconnaissance survey results
- Coordination with State Historical Preservation Office (SHPO)
- Land Use/Ownership
- Adjacent Properties
- Cultural Resources

Air Quality and Noise

- NAAQS
- Settlement of air pollutants
- Air emissions
- Dust generation
- Noise
- Visibility

Water & Sediment Quality

- Ground water contamination
- Surface water contamination
- Sedimentation
- Soil erosion
- Fugitive dust
- Wind erosion
- Ground disturbance
- Permafrost
- Soil contamination

Hazardous and Toxic Waste

- Releases

Socioeconomic/Aesthetics

Public safety and Awareness

Environmental Justice

Step Three: Scoping

- Identify regulatory bodies/agencies involved
- Identify team, assign roles & responsibilities
- Identify existing information
- Identify major issues
- Determine further data needs
- Public involvement
- Develop alternatives
- Formulate analysis criteria

Step Four: Consider Alternatives

Alternatives	Criteria/Attributes			
	Cost	Timeline	Environment	Public Perception
No Action	Low	Low	Low	Low
Proposed Action	High	High	Medium	Medium
Alternative 1	High	Medium	Low	High
Alternative 2	Low	Low	Medium	Low
Alternative 3	Medium	Medium	Medium	High

Environmental Review and Permitting

- NEPA is a Process, Not a Permit
- Major NEPA components intended to:
 - Systematically incorporate environmental considerations in decision-making
 - Provide thresholds for preparation of environmental impact documents based on impacts of proposed federal action
 - Provide basis for informed decisions
 - Provide meaningful opportunities for public participation

Endangered Species Act (ESA)

- Purpose – “to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species”. The Act defines three fundamental terms:
 - “Endangered” means that a species of fish, animal, or plant is “in danger of extinction throughout all or a significant portion of its range”
 - “Threatened” means a species “is likely to become endangered within the foreseeable future.” Regulations for a threatened species may be less restrictive than if it were endangered.
 - “Critical habitat” means “specific geographical areas that are ...essential for the conservation and management of a listed species, whether occupied by the species are not.”
- Section 9 of the ESA prohibits any person from “taking” endangered wildlife

Migratory Bird Treaty Act (MBTA)

- Forbids the taking, killing, or possession of migratory birds (more than 800 species)
- No statutory or regulatory mechanism to limit liability
- Wind developers need to take proactive measures to minimize the risk of mortality
- Individuals or organizations may be fined, and may face imprisonment for misdemeanor violations

Bald and Golden Eagle Protection Act

- Makes it unlawful to import, export, take, sell, purchase, or barter any bald or golden eagle, their parts, products, nests, or eggs.
- Misdemeanor violations – fines up to \$100,000 for individuals and \$200,000 for organizations
- Felony violations – fines of up to \$250,000 and \$500,000 for individuals and organizations
- Informants may be eligible for cash rewards

Environmental Review and Permitting

- Most Executive Agencies Have Developed Mission-Specific NEPA Processes
- Commonalities of All NEPA Processes:
 - Categorical Exemption and Inclusion criteria
 - Ascending levels of analysis and implementing requirements, based on impacts of proposed action
 - Public participation

What are the Wind-Wildlife Issues?

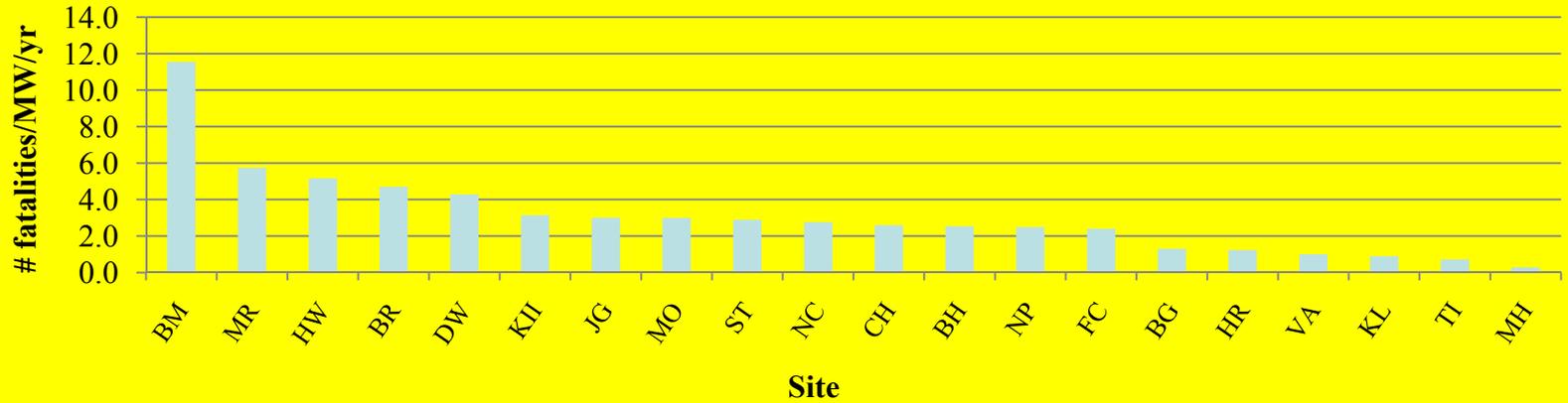
- **Avian Mortality**
- **Loss of Habitat**
 - Direct loss to facility
 - Indirect loss to disturbance
- **Bat Mortality**
- **T&E Species Issues**



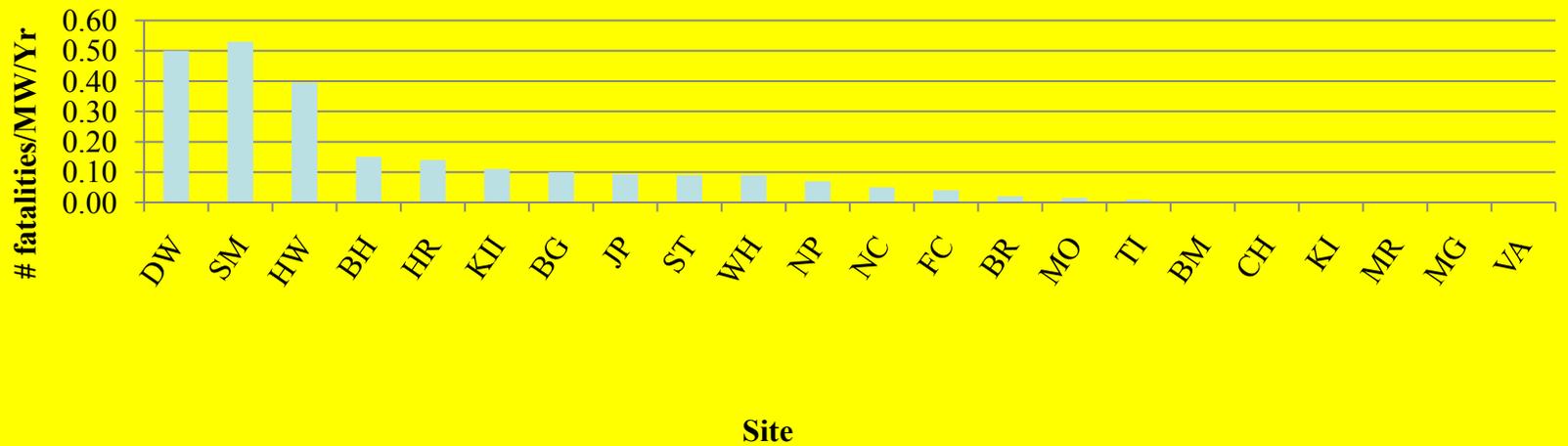
Fatality Monitoring Studies



All Bird Mortality



Raptor Mortality



Research Studies - Lighting

- Data to date suggests no measured increase in bird or bat mortality due to lighting on turbines – blinking red or white.
- Studies at Stateline, WA/OR; Mountaineer, WV; Combine Hills, OR; Hopkins Ridge, WA; Maple Ridge, NY
- Consistent with recent Communication Tower Results by Gehring et al. (2008)



Questions?

For more info:

<http://www.nrel.gov/wind/>

<http://www.awea.org/>

<http://rredc.nrel.gov/wind/pubs/atlas/>

<http://www.windpower.org/en/core.htm>

