

Transmission Siting Considerations, Best Practices, and Lessons Learned

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WESTERN RESOURCE
ADVOCATES



**"What is
missing is a
sense of
urgency"**



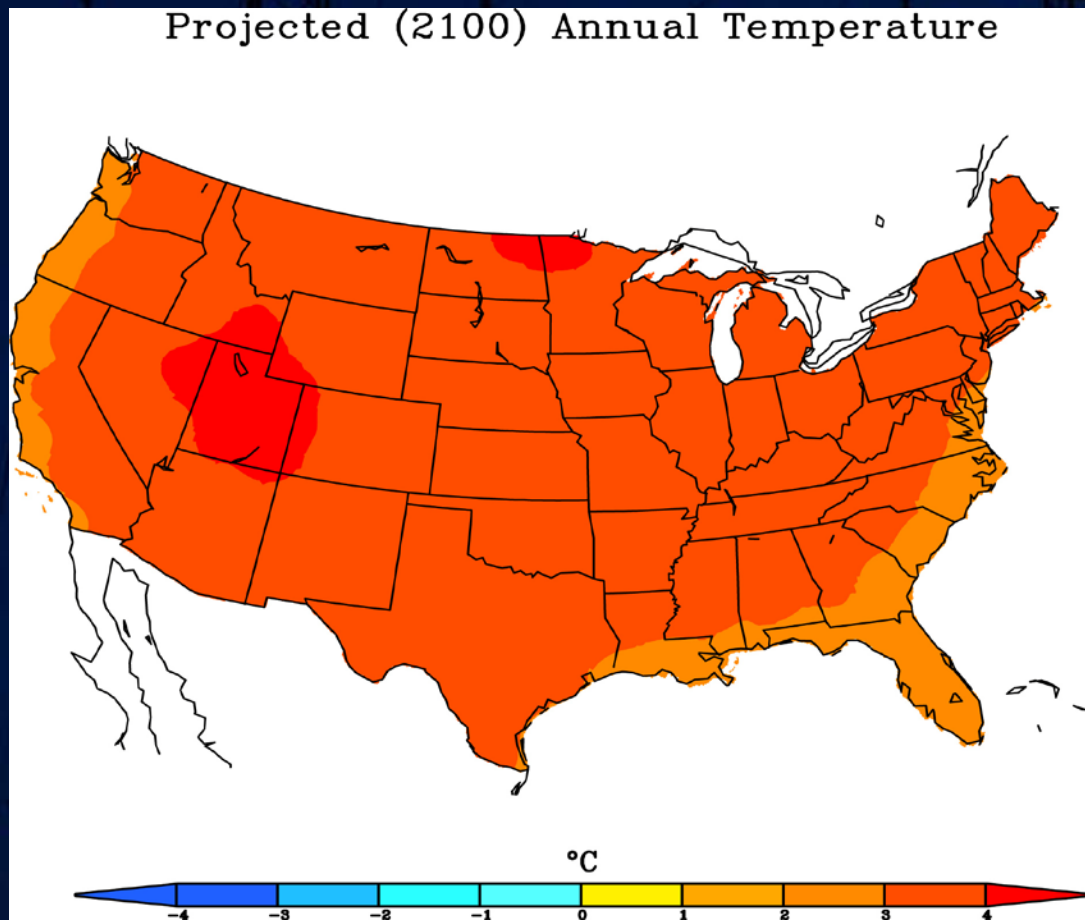
“If we’re not careful we will end up where we are going”

Urgency:

- ***6 of the 7 warmest years occurred in the last decade***

Projected Western US Warming +4°C by 2100

*For every 0.5°C warming, montane tree lines
advance ~100m*



Impacts for Western States

- Reduced mountain glaciers and snow cover
- Warmer mountain streams
- Increased frequency and intensity of fires
- Rapid changes in species distributions
- Treelines and montane zones move upward
- Significant changes in shrub and grasslands
- Loss of ponds and prairie potholes

Human Toll

- 100s of millions of environmental refugees in this century
- Increase in air pollution
- Spread of tropical diseases
- Water shortages and contamination
- Increased frequency of famines

US AID

Wildlife Toll

A polar bear is shown walking across a small, isolated ice floe in the middle of a dark, open ocean. The bear is white with some yellowish-tan fur, and its reflection is visible in the water below. The background shows more ice floes and a dark, choppy sea under a grey sky.

Climate change poses the greatest threat to biological diversity in human history

- **May lose 1/3 all species to climate change**
(IPCC Report)

Environmental Conundrum

Long-term vs. short term concerns

- Stave off a biodiversity disaster in the future by fast-tracking renewable-power development and transmission
- vs.
- Protect important habitat and landscapes now no matter long term concerns

Hurdles

- Uncertain about how much RE & Tx needed
- Human nature to focus on short term, tangible, impacts close to home

Full Disclosure

I come down on the side moving RE to markets sooner rather than later because:

- We know and can reasonably control the proximal threats of RE generation and transmission
vs.
- Having less knowledge, fewer tools, and less legal ability to influence the impacts of a substantially warmer climate

Important Keys to Success

- Retire sources of dirty energy - coal plants – as soon as reasonably possible
- Total and early engagement in siting generation and transmission law development, planning, scoping, rule-making, and permitting

Take Home Message:

- We can minimize the short term loss of biodiversity by acting intelligently, forcefully, strategically, and collectively

Transmission is a

- Bottleneck
 - some amount needed to deliver RE to markets
- Catch 22
 - some generators want guarantees of Tx before investing in RE
 - some Tx investors want RE generation and markets before investing in Tx
- Threat to natural heritage



Potential Wildlife Impacts of Transmission Lines

(Unique due to linearity, height, wires)

- Habitat loss and degradation from road and ROW construction
- Habitat fragmentation
- Bird and bat collisions with towers and wires
- Increased predation from raptors

Smart Line Transmission Planning Principles

- Efficiency First
- Maximize Existing Grid
- Connect to clean RE resources
- Ensure protection for public lands and wildlife resources

(www.westernresourceadvocates.org/energy/smartlines.php)

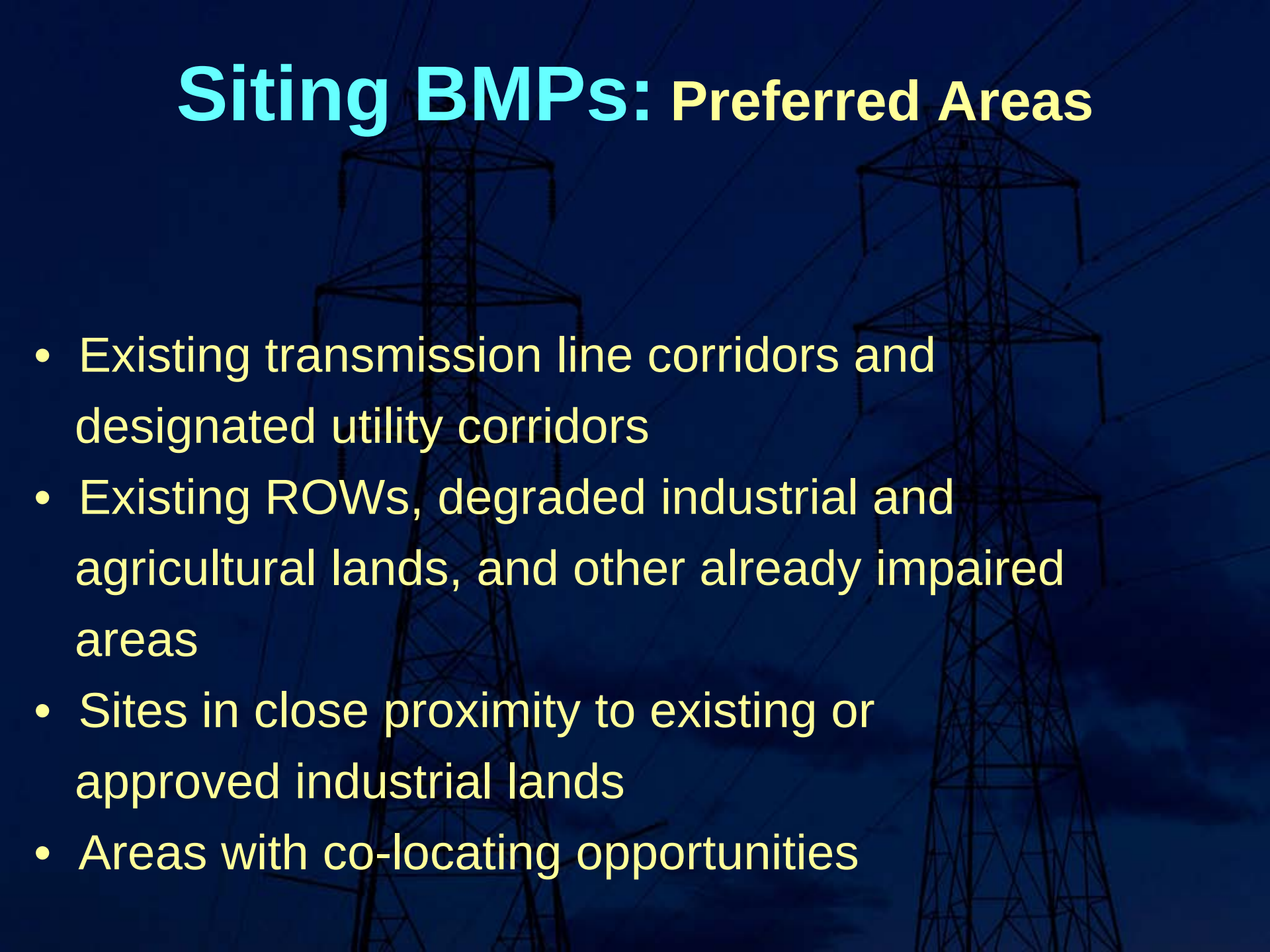
Major Siting Considerations

- Avoid sensitive public lands recognized for scenic, natural, recreational, cultural or historic resources
- Minimize impacts through adoption of BMPs for right-of-way siting, construction, maintenance
- Mitigate impacts

Major Siting Considerations

- Employ existing corridors or designated RE corridors, which guide transmission into discrete, well-defined and studied areas
- Use underground lines where overhead ones seriously conflict with sensitive biological resources or military activities

Siting BMPs: Preferred Areas



- Existing transmission line corridors and designated utility corridors
- Existing ROWs, degraded industrial and agricultural lands, and other already impaired areas
- Sites in close proximity to existing or approved industrial lands
- Areas with co-locating opportunities

Siting BMPs: Areas To Avoid

- Critical and core habitats for federal and state protected threatened, endangered, candidate species
- Important wildlife corridors and linkages
- Important wetlands and rivers like National Wild, Scenic, and Recreational Rivers, study rivers and segments
- Special Recreation Management Areas

Siting BMPs: Areas To Avoid

- National Parks, National Wildlife Refuges, National Monuments
- Wilderness Areas, Wilderness Study Areas and other areas with wilderness characteristics
- National Conservation Areas, Outstanding Natural Areas, Areas of Critical Environmental Concern and other lands within BLM National Landscape Conservation System
- National Historic and National Scenic Trails

BMPs (Construction)

Major Issues:

- Sensitive Resources Management
- Land and Right-of- Way Management
- Environmental Compliance
- Storm Water Pollution Prevention
- Erosion and Sediment Control

BMPs (Construction)

Sensitive Resources Management:

- Preconstruction surveys on right of way, substations, office sites, and storage yards
- Identification and confirmation of biological, cultural, and paleontological resources
- **Species-specific and site-specific plans to avoid, minimize or mitigate impacts to sensitive resources**

BMPs (Construction)

Sensitive Resources Management:

- Use tower design that minimizes raptor perches
 - Note that such design does not reduce degradation of habitat for prairie grouse
- **Crews employ professional third-party monitors with authority to stop work where protections are violated**
- Produce final report and resource cataloging

BMPs (Construction)

Right-of-Way Management and Maintenance:

- Minimal construction of access roads and ROWs to reduce disturbance
- Establish speed limits on access roads
- Require stringent control of invasive species
 - require equipment washing before entry into sensitive areas
- Spill response and fire prevention materials located with construction crews
- Erosion and sediment control devices installed, maintained, and removed

Draft Guidance for Mitigating Impacts

Major Considerations:

- First avoid, then minimize, then mitigate
- Mitigation should:
 - At a minimum, balance loss of habitat and biodiversity
 - Preferably enhance long-term health and viability of the populations
- May require additional research to determine effective mitigation, especially given unique nature of transmission impacts (linear and tall)

Draft Guidance for Mitigating Impacts

Major Considerations:

- Protection at least throughout life of project
- May require establishment and enforcement of special regulations
- Potential use of an annual fee for life of project for acquisition, stewardship, and restoration

Draft Guidance for Mitigating Impacts

Replacement habitat:

- At least acre for acre (ratios vary with habitat type and quality, geography, legal protection, direct vs. indirect, permanent vs. temporary)
- Equivalent type and quality of habitat (grassland for grassland)
- Same geographic area preferred
- Acquisition preferred (fee simple, easements)

Portals to Influence Tx Siting

- National Environmental Policy Act
 - Scoping
 - EIA, EISs (Draft, Final, Programmatic Supplemental)
- Public Utility Commission
 - CPNC
 - Planning Dockets
- County Commissions
 - Building Permits

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Think Globally, Lead Locally



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