

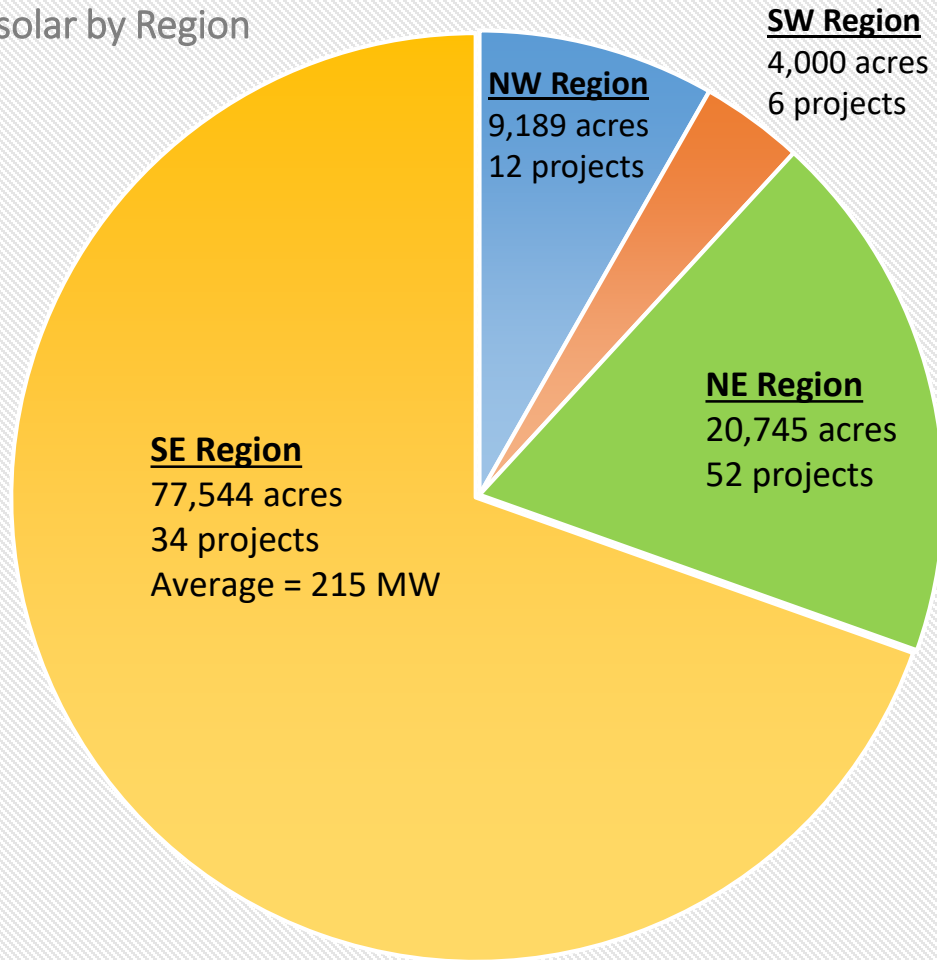
Colorado Parks and Wildlife
*Best Management Practices for
Solar Energy Development*



Solar Development Trends in Colorado

2017 to now

Project acreage reviewed by CPW
for proposed solar by Region



Wildlife concerns identified for reviewed sites:

Big game winter range
(mule deer, bighorn sheep, elk, pronghorn)

Big game migration corridors

Greater sage-grouse leks and priority habitat management areas

Gunnison's sage-grouse critical habitat

Plains Sharp-tailed grouse

Golden and Bald eagle nests, raptor nests

Burrowing owls, Mountain plover

Permitted Utility Scale Solar Projects

<i>SE Region:</i>	<i>NE Region:</i>
10 projects	5 projects
1625 MW	~275 MW
19,021 acres	2,866 acres



Purpose of the BMP document

- To provide guidance for the siting and development of utility scale solar regarding potential impacts to wildlife
- Developed in response to increase in large scale solar project proposals in Colorado
- Not intended to replace site-specific CPW review of wildlife impacts
- Intended to be a 'living document'



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Purpose of the BMP document

Who might use the Solar Energy BMPs?

- *Developers*: To provide information on potential impacts to wildlife to developers much earlier in the planning process
- *County planners, other agencies*: Provide overview of potential impacts for planning purposes
- *CPW staff*: Promote statewide consistency, allow staff to focus on detailed project specific impacts and recommendations



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Development of Solar BMPs

- Initial development of draft BMPs based on
 - CPW staff reviews of proposed projects
 - Project-level discussions with solar energy developers
 - Review of available science and guidance documents
- Internal CPW review process
 - Energy and Land Use staff
 - District Wildlife Managers, Area Wildlife Managers, Area biologists
 - Regional senior staff, Species Conservation coordinators
 - Leadership Team



Development of Solar BMPs

- External feedback from publicly-issued CPW comment letters in county 1041 permit processes
 - Developer, county, and USFWS responses
- Peer review by other states
 - State wildlife agency energy staff from OH, OR, TX, KS, GA reviewed working draft
 - Only a handful of state wildlife agencies have current solar energy guidelines



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CPW Solar Energy BMPs

- Primarily address utility-scale developments
- Focus on photovoltaic solar (PV) as primary technology proposed in CO
- Address potential impacts across the state
- Avoid >> Minimize >> Mitigate
- Guidance included in these BMPs:

site selection → project development → construction
→ operations → decommissioning and reclamation



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CPW Solar Energy BMPs

1. *Assessment of Potential Adverse Effects.*
2. *Alignment and Compliance with CPUC Rule 3668 - Environmental Impacts.*
 - Documentation that consultation occurred with appropriate government agencies (CPW, USFWS)
 - The developer certifies:
 - site specific wildlife surveys were performed prior to construction;
 - the results were used in developing the design, construction and management of the facilities to avoid, minimize, and/or mitigate any adverse environmental impacts...
3. *Avoiding/Minimizing Impacts.*
 - Identify and avoid impacts to key resources through siting and project design
 - Avoid high priority habitats
 - Maximize use of disturbed lands



CPW Solar Energy BMPs

4. *Habitat Loss and Fragmentation.*

- Minimize project footprint and habitat fragmentation
- Maintain natural drainage patterns, preserve movement corridors
- Recommend compensatory mitigation when significant impacts are not avoided

5. *Study Protocols and Monitoring.*

6. *Wildlife Protection.*

- Big game habitats
- Grouse
- Raptors, migratory birds
- State listed species, Species of Greatest Conservation Need (SGCN)



CPW Solar Energy BMPs

7. *Construction and Operational Considerations.*

- Minimization of impacts
- Pre-construction surveys, timing considerations

8. *Weed Management.*

- Maintain native vegetation
- Prevent the spread of invasive weed species

9. *Security Fencing and Lighting.*

- Security fencing minimum standards are 6 ft chain link with barbed wire
- If security fencing is required, CPW requests it meet specifications for wildlife-exclusion fencing



CPW Solar Energy BMPs

10. *Transmission Line Development.*

- Colocation with existing infrastructure
- Industry standards, APLIC

11. *Avian Fatality Risk.*

- Scientific studies ongoing, still many unknowns
- PV solar currently considered lower risk than concentrated solar
- Monitoring recommended for migration flyways, near waterways

12. *Reclamation and Decommissioning.*



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Next steps:

- Solar BMPs will be posted to CPW webpage
- Will distribute to developers, consultants, stakeholders that have requested BMPs
- Continue to evaluate new research findings and work with other states and federal partners



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