



Greater Sage-grouse Status Review

Non-Renewable Energy Development

Impacts to Sage-grouse

- Non-renewable energy development in sage-grouse habitats has resulted in:
 - Decreased lek attendance
 - Loss of leks
 - Habitat loss and fragmentation
 - Increased stress
 - Loss of seasonal habitat
 - Population declines
 - Local population extirpation



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Impacts to Sage-grouse

- Identified as one of three primary factors resulting in habitat loss and fragmentation in the 2010 finding.
- Concentrated in MZs I, II and VII
- Energy development is anticipated to continue to grow in areas that overlap with sage-grouse

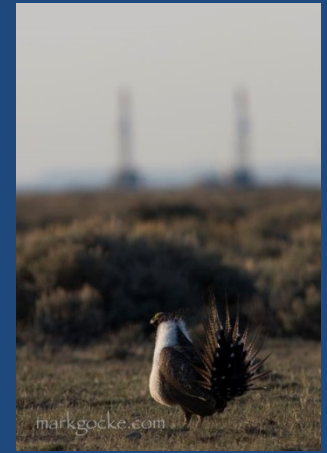


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Changes since 2010

- Energy development continues to be a management challenge for sage-grouse conservation.
- Extraction techniques continue to evolve, and in some areas the result has been a reduction of both direct and indirect impacts.
- Some types of extraction cannot reduce their footprint due to geology.
- New regulatory mechanisms are shifting some of the impact out of sage-grouse areas.

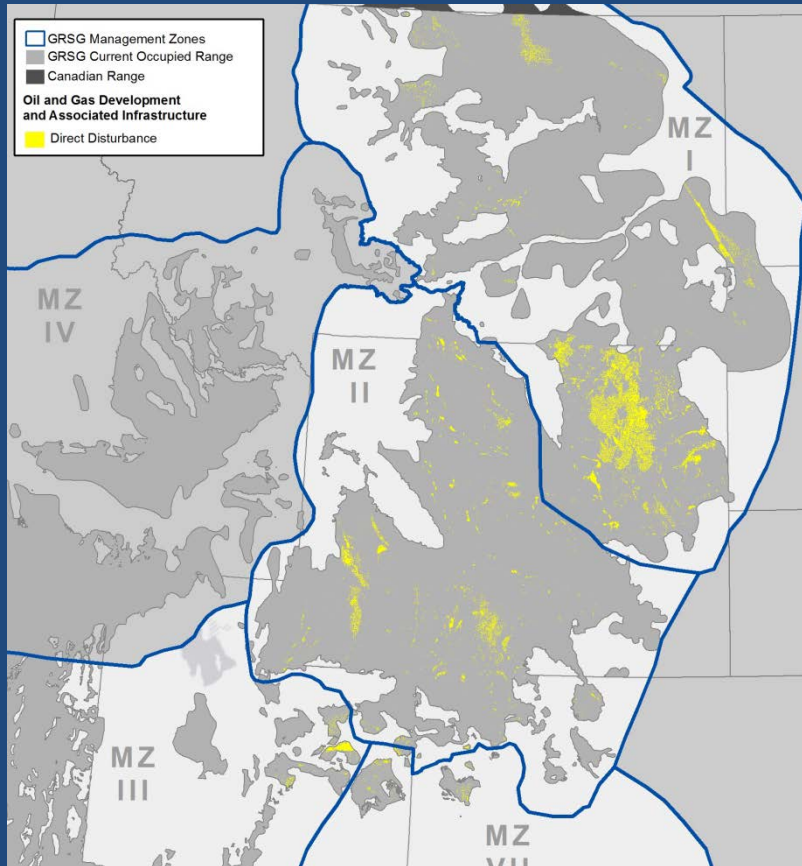


Models and Energy Development

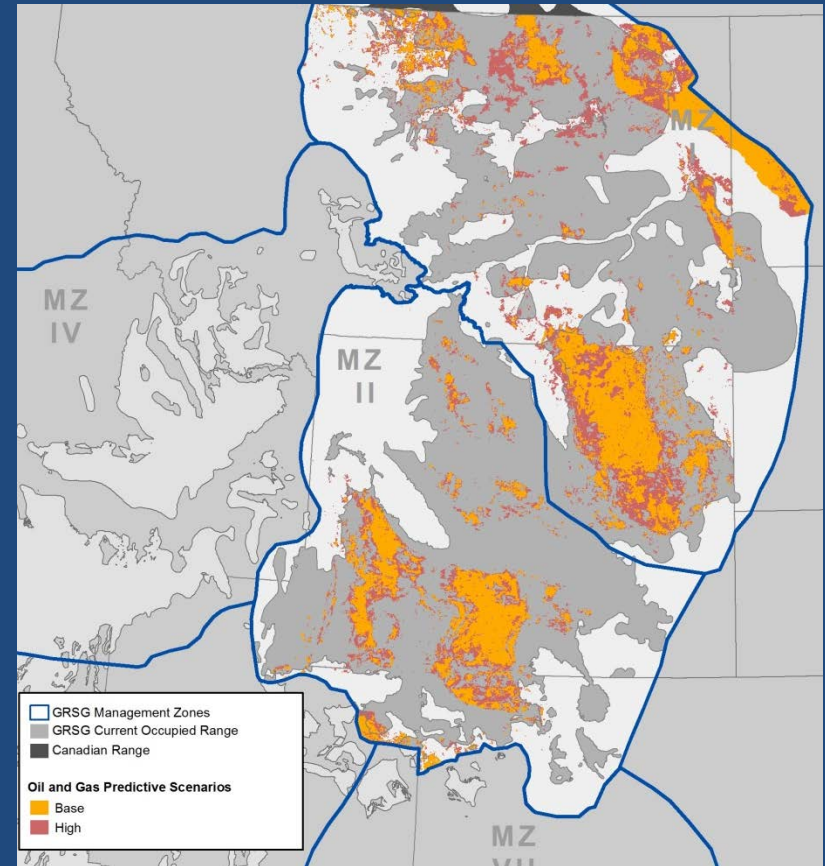
- Modeling effort has more precisely identified the extent of the impact.
- Land use allocations and conservation efforts are clearly helping to reduce impacts
- Exposure to development does not result in death, but rather declines in sage-grouse resilience



Models and Energy Development



Existing



Baseline and High Scenarios



Models and Energy Development

- Assuming full implementation of WY core and BLM land use allocations:
 - MZ I – 10 to 17% exposure of 12.4% of population range-wide
 - MZ II – 5 to 8% exposure of 36.8% of population range-wide

(MZ VII not modeled, has 0.3% of population range-wide, with limited protective measures)



Models and Energy Development





Range-wide Exposure:

- MZ I
 - Maximum development = 2.1% birds exposed
 - Baseline development = 1.3 % birds exposed
- MZ II
 - Maximum development = 3.1% birds exposed
 - Baseline development = 2.0% birds exposed

Does not address connectivity, location of birds actually impacted, cumulative impacts



Modeling and Energy Development

- Actual impact likely in between due to:
 - Core area strategy does not completely eliminate development - 
 - Moderate stipulations likely provide some level of protection - 
 - Does not consider valid existing rights that will not be subject to new land use allocations – 
 - Federal implementation plans outlining exceptions to land use allocations not drafted at this time - 
- Actual future development will depend on the market values of the resources, demands, and evolving extraction technology



Modeling and Energy Development

- Sage-grouse will continue to be exposed to energy development
- Negative impacts will continue, but amelioration measures in place
- MZ I will be affected more than MZ II because:
 - Less protective measures
 - Greater percentage of a smaller population exposed



Summary

- Nonrenewable energy development will continue to have negative impacts on sage-grouse, primarily in the eastern portion of the range
- Impacts have been ameliorated since 2010 by Wyoming core area strategy and BLM proposed allocative decisions.
- VER are an area of high(?) uncertainty

