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**STATE OF NEVADA**  
**Sagebrush Ecosystem Program**

**SAGEBRUSH ECOSYSTEM COUNCIL**  
**STAFF REPORT**  
**MEETING DATE: June 23, 2014**

**DATE:** June 17, 2014  
**TO:** Sagebrush Ecosystem Council Members  
**FROM:** Sagebrush Ecosystem Technical Team  
Telephone: 775-684-8600  
**THROUGH:** Tim Rubald, Program Manager  
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**SUBJECT:** Discussion and possible adoption of proposed revisions to sections of the 2012 State Plan, including: Predation; Wild Horse and Burro Management; Livestock Grazing; and The Conservation Credit System.

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**SUMMARY**

The purpose of this item is to discuss and consider adoption of proposed revisions to sections of the State Plan, including: Fire and Invasive Plants; Mining; and Energy Production, Transmission, and Distribution. The SEC first directed the SETT to update the State Plan and EIS Alternative at the April 22, 2013 meeting. Since that time, the SETT has been primarily focused on revising items necessary for inclusion in the BLM/USFS LUPA and FEIS. With that work accomplished, the primary focus has shifted to updating the State Plan, necessary to be complete by September 2014, when the USFWS begin their 12-month findings process for the listing decision. A timeline for accomplishing this work was approved by the SEC at the April 8, 2014 meeting.

**PREVIOUS ACTION**

**March 27, 2013.** The Council directed the SETT to meet with USFWS and NDOW staffs to discuss the USFWS comments on the Nevada State Plan and report back to the Council.

**April 22, 2013.** The Council directed the SETT to further develop the Nevada State Plan and the EIS Alternative to incorporate the concerns expressed by the USFWS.

**July 30, 2013.** The Council adopted the Sagebrush Ecosystem Strategic Detailed Timeline, which included revision of the State Plan/EIS Alternative.

**April 8, 2014.** The Council approved a report on the timeline for revising the State Plan, which included consideration of the revised Fire and Invasive Plants; Mining; Energy; and Monitoring and Adaptive Management sections at the June Council meeting.

**December 18, 2013.** The Council adopted a Revised Section 3.0 Goals and Objectives of the 2014 State Plan.

**December 18, 2014.** The Council approved Appendix A: Site-Specific Consultation Based Design Features of the 2014 State Plan.

### **DISCUSSION**

This agenda item requests the approval of revisions to the Fire and Invasive Plants; Mining; and Renewable and Non-Renewable Energy Production, Transmission, and Distribution sections of the State Plan. The revised sections provide more detailed background information, further develop the concepts in the 2012 State Plan, and incorporate concepts approved by the SEC in Section 3.0 and Appendix A (Site-Specific Consultation Based Design Features) of the 2014 State Plan. The Monitoring and Adaptive Management section was also originally scheduled to be presented at this meeting, however it will be discussed at the June 24, 2014 SEC Committee on Monitoring meeting, due to the interest of the Committee. The section will be brought to the full SEC for consideration and approval at the August meeting.

### **RECOMMENDATION**

Staff recommends the SEC approves the proposed revisions to the Fire and Invasive Plants; Mining; and Renewable and Non-Renewable Energy Production, Transmission, and Distribution sections of the State Plan or provides direction to the SETT on how to further revise the sections.

### **POSSIBLE MOTION**

Should the SEC agree with the staff recommendation, a possible motion would be: “Motion to approve the proposed revisions to the Fire and Invasive Plants; Mining; and Renewable and Non-Renewable Energy Production, Transmission, and Distribution sections of the State Plan.”

or

“Motion to approve the proposed revisions to the Fire and Invasive Plants; Mining; and Renewable and Non-Renewable Energy Production, Transmission, and Distribution sections of the State Plan, with additional amendments.”

*(The SEC may choose to approve the sections individually or collectively.)*

### **Attachments:**

1. Revised State Plan Section 7.1: Fire and Invasive Plants
2. Revised State Plan Section 7.6: Mining
3. Revised State Plan Section 7.7: Renewable and Non-Renewable Energy Production, Transmission, and Distribution

mf: TR

1 **7.1 Fire and Invasive Plants**

2 In 2012, Nevada’s Greater Sage-grouse Advisory Committee, using the best available science, identified  
3 fire and invasive plants, principally cheatgrass, as the primary threat to sage-grouse and their habitat in  
4 the state of Nevada. Wildland fires and the subsequent invasion by cheatgrass and other invasive plants  
5 continue to create large-scale habitat loss and fragmentation. This current rate of habitat loss is not  
6 sustainable for long-term sage-grouse population persistence.

7 While the vast majority of fires in sage-grouse habitat are suppressed in the initial attack phase, the  
8 continued loss of large areas in sage-grouse habitat occurs most often during periods of ‘Extreme Fire  
9 Danger Conditions’ when fire behavior has the greatest impact on suppression capabilities. These  
10 ‘Extreme’ conditions can exist simultaneously over large areas of the western U.S, creating a shortage of  
11 regional/national firefighting assets due to pre-existing large fires with greater values at risk (Murphy et  
12 al. 2013).

13 The State acknowledges these threats must be adequately addressed in order to achieve the  
14 conservation goal for sage-grouse and actions must be taken to increase overall preparedness,  
15 strategically locate fuels management projects, increase local suppression capabilities, improve  
16 rehabilitation/restoration capabilities.

17 To this end, the State has begun to address these threats by creating the Sagebrush Ecosystem Program,  
18 composed of the Sagebrush Ecosystem Council, with its attendant Sagebrush Ecosystem Technical Team,  
19 to develop and approve a state plan that facilitates best available science review and technology  
20 transfer to State and local agencies and works in coordination with federal land managers and other  
21 public and private partners. In addition, the State has also approved and is implementing the Nevada  
22 Division of Forestry’s (NDF) Wildland Fire Protection Program, which allows for full implementation of  
23 Nevada Revised Statute 472, improving delivery of financial, technical and equipment/human resources  
24 to Nevada counties in fuels reduction planning and implementation, wildfire management and  
25 suppression, and restoration of burned areas.

26 Nevada Revised Statute (NRS) 555 and Nevada Administrative Code (NAC) 555 address both noxious and  
27 invasive plants, their status, and any regulations regarding the control of such plants. The State has  
28 established a priority list of noxious weeds that require some form of control. Other widespread  
29 invasive plants, such as cheatgrass, while not on the noxious weed priority lists, pose a significant threat  
30 to Nevada’s landscapes and habitats and will be addressed on a priority basis, particularly when it is  
31 compromising sage-grouse habitat objectives (see Section 4.0).

32 The introduction of exotic invasive plant species in Nevada has likely been occurring since the early  
33 European settlers arrived and has been knowingly and unknowingly occurring since that time. While  
34 some species may go seemingly unnoticed, many currently pose significant threats to the sagebrush  
35 ecosystem, wildlife habitats, and our landscape in general. While all of these identified species are  
36 currently considered by the State as invasive plants, some warrant further declaration as ‘noxious’.  
37 Noxious weeds are defined in NRS 555.130 as: “Any species of plant which is likely to be detrimental,  
38 destructive and/or difficult to control, but is not already introduced and established in the State to such

1 an extent as to make its control or eradication impracticable in the judgment of the State Quarantine  
2 Officer". Plants that do not meet this definition are generally considered to be invasive or nuisance  
3 weeds. Cheatgrass falls into the 'invasive' category due to its expansive footprint within Nevada's  
4 sagebrush ecosystem.

5 Cheatgrass (*Bromus tectorum*) is an exotic species from the Middle East that was introduced in North  
6 America in the late nineteenth century and has become one of the most adaptive and dominant invasive  
7 plants in the Western U.S. This is especially true following fire and other major ground disturbing  
8 activities in sagebrush ecosystems, particularly at lower elevations and precipitation zones in Nevada.

9 Many factors will be considered when prioritizing treatments for fire and invasive plants (i.e. noxious  
10 weed presence, sage-grouse breeding densities, habitat suitability (abundance, quality, and  
11 connectivity), existing additional threats, resistance, resilience, ecological site description, state and  
12 transition models, etc.). Additionally, further prioritization may be determined by the type of action  
13 required (conservation related, prevention based, or restoration or rehabilitation activities), presence of  
14 or proximity to sage-grouse habitat, and the amount of funding available for treatment in a given year.

### 15 **Goals, Objectives, and Management Actions**

16 The overarching direction of Nevada's plan is to stop the decline of sage-grouse populations and restore  
17 and maintain a functioning sagebrush ecosystem. Currently, it is not economically or ecologically  
18 feasible to restore all fire damaged or invasive plant dominated landscapes, nor is it possible to prevent  
19 all fires, though the State acknowledges that this threat must be addressed in order to provide for the  
20 conservation of sage-grouse. In order to achieve this goal, the State will take a phased approach  
21 through a series of short term and long term objectives and management actions. The State will first  
22 seek to reduce the amount of habitat loss, with the long-term objective of restoring ecosystem functions  
23 and processes. This will require a concerted and consistent commitment to achieve these objectives  
24 over the long-term.

25  
26 The State has already taken steps to achieve these objectives through statewide adoption and  
27 implementation of the Nevada Division of Forestry's Wildland Fire Protection Program, creating a tiered  
28 system that gives equal priority to cooperative pre-suppression fire prevention projects; adopting and  
29 incorporating National Wildfire Coordination Group (NWCG) approved training and firefighting  
30 techniques that can help preserve habitat; and, cooperative post-suppression rehabilitation and  
31 restoration activities in and around areas of important habitat.

32  
33 **Goal 1:** Ameliorate the threat of fire and invasive plants in order to provide for the conservation of sage-  
34 grouse and their habitat.

#### 35 36 Short term objectives and management actions:

37 **Objective 1.1:** Reduce the amount of sage-grouse habitat loss due to large acreage wildfires and  
38 invasion by non-native plants.

#### 39 *Pre-suppression*

40  
41 In order to address the threat of fire and invasive plants, which continues to challenge land  
42 managers throughout the western United States, the State proposes a paradigm shift. This

1 entails a shift in focus from the current suppression-centric approach to a more nuanced, cost  
2 effective, and proactive approach focusing on pre-suppression activities; which if adequately  
3 supported, will contribute greatly to Federal, State and local efforts to stop the dominance of  
4 invasive plants, reduce catastrophic wildfire incidence, and restore fire to within a range of  
5 variability to support sustainable populations of sage-grouse in Nevada.  
6

7 **Management Action 1.1.1a:** Develop, and provide sustainable, predictable federal, state, and  
8 local funding sources for pre-suppression activities (including maintenance) separate from and  
9 independent of funding for suppression and post-fire rehabilitation activities.

10  
11 **Management Action 1.1.1b:** Dedicated funding will be used to plan and implement cost  
12 effective pre-suppression activities with an emphasis on strategic, scalable cooperative projects  
13 informed by best available science; utilizing cost efficient methods and tools; and followed up  
14 with effective, repeatable monitoring.  
15

16 **Management Action 1.1.1c:** Pre-suppression planning and fuels management projects will be  
17 informed by the best available science. This information will be incorporated into the planning  
18 process to inform locations of landscape and local scale fuels management projects and to  
19 provide protection to areas of sage-grouse habitat that have compromised resilience,  
20 resistance, and heterogeneity (see Appendix {X} for modeling and planning tools commonly  
21 used).  
22

23 **Management Action 1.1.1d:** Prioritize pre-suppression fuels management projects, fire  
24 prevention planning, and invasive plant control activities in and around Core and Priority  
25 Management Areas. Pre-suppression projects will be identified, designed and prioritized so that  
26 they facilitate firefighter safety, protect private property, prioritize important sage-grouse  
27 habitat, and work to maintain natural resource functions.  
28

29 **Management Action 1.1.1e:** Establish, maintain, and fund an effective, repeatable pre-  
30 suppression monitoring and adaptive management program that informs future project  
31 planning and implementation.  
32

### 33 *Suppression*

34 State and federal agencies will provide safe, cost-effective fire management programs that  
35 support the conservation of sage-grouse habitat through collaborative planning, coordination,  
36 training, staffing, resource allocation, and fire management oversight.  
37

38 **Management Action 1.1.2a:** Support robust, coordinated, and rapid fire suppression  
39 management using a diversity of agencies, including federal, state, tribal and local government,  
40 as well as creating, empowering and training (to latest Nevada and National Wildfire  
41 Coordinating Group (NWCG) standards) Rural Fire Associations, Fire Protection Districts and  
42 Wildfire Support Groups.  
43

44 **Management Action 1.1.2b:** Support and improve interagency wildfire prevention activities and  
45 education statewide, including: interagency agreement updates, wildfire workshops,  
46 demonstration projects, and public service announcements on wildfire and sage-grouse habitat  
47 loss.

1  
2 **Management Action 1.1.2c:** When prioritizing wildland firefighting actions in the Sage Grouse  
3 Management Area (SGMA), top priority should be given to Core Management Areas, followed  
4 by Priority and General Management Areas during fire operations.  
5

6 **Management Action 1.1.2d:** Wildland fire can be used strategically to accomplish resource  
7 management objectives. Fire may not have to be suppressed in all instances. Resource and fire  
8 managers should consider beneficial fire use if located in areas that may benefit sage-grouse  
9 habitat, but only if:

- 10 • it would not risk the spread of invasive plants;
- 11 • human lives, property, and important natural resource functions are not at risk;
- 12 • wildland fires exhibit prescribed/desired fire behavior characteristics and are located in  
13 designated sage-grouse habitats appropriate for beneficial fire use; and
- 14 • will not increase the spread of invasive plants into sage-grouse habitat  
15

16 **Management Action 1.1.2e:** Manage wildland fires in sage-grouse habitat to retain as much  
17 habitat as possible. Interior unburned islands of vegetation in areas of habitat should be  
18 protected through follow-up mop-up of the island's perimeter and interior, when fire crew  
19 safety is not at risk.  
20

#### 21 *Post-Fire Restoration/ Rehabilitation*

22 Emergency stabilization (ES) and burned area rehabilitation (BAR) funding streams are  
23 instrumental in the process of stabilizing soils and reestablishing vegetation on federal lands  
24 post-fire. Currently, these programs typically provide funding for rehabilitation treatment  
25 immediately post-fire usually, which does not reflect the need to accommodate for poor initial  
26 success due to lack of precipitation and other environmental variables.  
27

28 **Management Action 1.1.3a** Work with federal, tribal, and local governments to develop  
29 dedicated funding sources that allow for up to five years of additional post-fire restoration  
30 treatments in order to better insure projects meet goals and objectives.  
31

32 **Management Action 1.1.3b** Until such time as dedicated funding sources for multi-year post-fire  
33 restoration treatments can be developed, federal, state, tribal, and local governments should  
34 submit budget requests and projections that reflect the need for funding that will cover actual  
35 and contingent yearly costs associated with successful multiyear post-fire rehabilitation efforts.  
36

37 **Management Action 1.1.3c:** Use the concepts of resistance and resilience and products  
38 developed by BLM's FIAT group to determine if post-fire restoration actions are necessary to  
39 achieve sage-grouse habitat objectives (see Section 4.0).  
40

41 **Management Action 1.1.3d:** Control the spread of invasive plants post-fire.  
42

43 **Management Action 1.1.3e:** Post-fire rehabilitation efforts in sage-grouse habitat should be  
44 collaborative and strategic in approach. Federal, state, tribal and local agencies should  
45 coordinate and collaborate on rehabilitation projects in sage-grouse habitat where  
46 responsibilities and land ownership interests intersect.  
47

1       **Management Action 1.1.3f:** Post-fire restoration treatments in Core, Priority, and General  
2       Management Areas should be designed to meet sage-grouse habitat objectives (see Section  
3       4.0). Consider the use of native plant materials based on availability and probability of success.  
4       When native plant materials are not available or the probability of success is low, use non-native  
5       plant materials that will meet sage-grouse habitat. All seed used on rehabilitation and  
6       restoration projects must be certified weed-free.

7  
8       **Management Action 1.1.3g:** Monitor post-fire restoration treatments to ensure long term  
9       persistence of restored habitat, and that the monitoring continues at least until treatment  
10      objectives are met.

11  
12      *Invasive plants*

13      While wildfire is commonly the vector for the spread of invasive plants, such as cheatgrass,  
14      invasive plants are currently widespread throughout the Great Basin and can spread without the  
15      aid of wildfire. In order to address the general threat of invasive plants, the State will pursue a  
16      strategy of Prevent, Detect, Control, Restore, and Monitor, using the best available science. The  
17      Nevada Department of Agriculture (NDA) will utilize its EDDMaps program to assist the State in  
18      the implementation of these efforts.

19  
20      **Management Action 1.1.4a:** Prevent the establishment of invasive plants into uninvaded sage-  
21      grouse habitat. This will be achieved by conducting systematic and strategic detection surveys,  
22      data collection, and mapping of these areas and engaging in early response efforts if invasion  
23      occurs. This will be achieved by further developing federal and state partnerships and working  
24      with counties, cities, and local groups, such as Weed Control Districts, Cooperative Weed  
25      Management Areas, and Conservation Districts. This is the highest priority for the state of  
26      Nevada.

27  
28      **Management Action 1.1.4b:** Proposed anthropogenic disturbance should employ Site Specific  
29      Consultation Based Design Features (see Appendix A) in order to minimize land disturbance and  
30      prevent the spread of invasive plants.

31  
32      **Management Action 1.1.4c:** Require anthropogenic disturbance proponents to monitor for the  
33      existence of invasive plants pre-disturbance and to report all findings to the NV EDDMaps  
34      database. Pre- and post-disturbance activities must include prevention strategies prior to  
35      entering sites, control, restoration, and monitoring for one full growing season following the  
36      disturbance. All sites must be certified weed free prior to any relinquishment of obligations that  
37      authorized the disturbance.

38  
39      **Management Action 1.1.4d:** Detect new invasive plant infestations, whether it is a single plant  
40      or a small patch. If it can be detected and mapped early in the invasion and control begins  
41      immediately, then the likelihood for eradication will increase dramatically. NDA will use its  
42      EDDMaps program to assist in the effective and efficient implementation of this action.

43  
44      **Management Action 1.1.4e:** Within sage-grouse habitat, and where funding may be a limiting  
45      factor, the first priority will be to control invasive plants that are compromising attainment of  
46      sage-grouse habitat objectives (see Section 4.0).

1       **Management Action 1.1.4f:** Restore ecologically functioning sagebrush ecosystems already  
2       compromised by invasion to meet sage-grouse habitat objectives (see Section 4.0). Restoration  
3       may include revegetating sites with native plants cultivated locally or locally adapted, and/or  
4       non-native plant species where appropriate. Control of invasives must be accompanied by  
5       ecosystem restoration.

6  
7       **Management Action 1.1.4g:** Ecological site descriptions and associated state and transition  
8       models will be used to identify target areas for resiliency enhancement and/or restoration.  
9       Maintaining and/or enhancing resiliency should be given top priority. In the Great Basin  
10      sagebrush-bunchgrass communities, invasion resistance and successional resiliency following  
11      disturbance are functions of a healthy perennial bunchgrass component. Therefore a  
12      combination of active and passive management will be required to ensure this functionality.  
13      Areas that are in an invaded state that will likely transition to an annual grass monoculture if a  
14      disturbance occurs and are located within or near sage-grouse habitat should be prioritized for  
15      restoration efforts to increase resistance and resiliency.

16  
17      **Management Action 1.1.4h:** Engage climatological and meteorological professionals and their  
18      agencies to identify opportunities to increase both effectiveness and efficiency in the timing of  
19      restoration activities. Additional activities could include weather augmentation through cloud  
20      seeding, and assistance with both short term and longer term weather prediction model  
21      guidance or shorter term weather indicators.

22  
23      **Management Action 1.1.4i:** Monitor and adaptively manage to ensure effectiveness of efforts  
24      to prevent, detect, control and restore. Use the resource mapping functions within EDDMaps to  
25      identify and map infestations as well as any preventive, restoration, or rehabilitation efforts.

26  
27      Long term objectives and management actions:

28      **Objective 2a:** Maintain an ecologically healthy and intact sagebrush ecosystem that is resistant to  
29      the invasion of non-native species and resilient after disturbances, such as wildfire.

30  
31  
32      **Objective 2b:** Restore wildfire return intervals to within a spatial and temporal range of variability  
33      that supports sustainable populations of sage-grouse and other sagebrush obligate species.

34  
35      **Management Action 1.2.1** Develop consistent and dedicated funding sources in order to  
36      provide a consistent commitment to pre-suppression, suppression, post-fire restoration, and  
37      invasive plant management actions described above.

38  
39      **Management Action 1.2.2:** Federal, state, tribal, and local governments, as well as private  
40      entities should work collaboratively to consistently implement the management actions  
41      described above.

42  
43      **Management Action 1.2.3:** Monitor and adaptively management all management actions to  
44      evaluate and assess the effectiveness at achieving objectives.



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**Management Action 1.2.4:** Emphasize continued research and provide funding to enhance knowledge and understanding of how to further reduce the prevalence of catastrophic wildfire, the invasion of annual grasses (primarily cheatgrass), fire behavior, and reclamation/ restoration techniques.

**Literature Cited:**

Murphy, T., D. E. Naugle, R. Eardley, J. D. Maestas, T. Griffiths, M. Pellant, and S. J. Stiver. Trial by Fire: Improving Our Ability to Reduce Wildfire Impacts to Sage-Grouse and Sagebrush Ecosystems through Accelerated Partner Collaboration. *Rangelands* 35(3):2–11  
doi:10.2111/RANGELANDS-D-13-00009.1

DRAFT

1 **7.6 MINING**  
2

3 Mining is a vital part of the state of Nevada’s economy both currently and historically. The initial  
4 discovery of the Comstock Lode silver ore deposit in Virginia City in the 1850s was central to the settling  
5 and development of Nevada, as well as a major reason for Nevada’s admission into the United States in  
6 1864. The Nevada Department of Taxation currently assesses the net mineral value in the State to be  
7 approximately \$5.1 billion (State of Nevada 2014). The annual tax revenue collected in fiscal year 2013  
8 was approximately \$236 million (State of Nevada 2014). It is estimated that Nevada’s mining economic  
9 output contributes to a 6% share of Nevada’s statewide GDP (Nevada Mining Association 2011).

10  
11 The primary type of mineral exploration and development in the state of Nevada is locatable minerals,  
12 including gold, silver, and copper. Locatable mineral development and exploration is governed under the  
13 General Mining Law of 1872 and is a non-discretionary activity on federal lands. Salable and non-energy  
14 leasable mineral exploration and development also occurs, though to a lesser extent. Salable mineral  
15 materials, which are common varieties of construction materials and aggregates, such as sand, stone,  
16 and gravel are governed under the Materials Acts of 1947. Government and non-profit organizations  
17 may obtain these resources free of charge for community purposes on BLM and USFS administered  
18 lands. The Nevada Department of Transportation and local governments are the primary users of gravel  
19 and sand resources on federal lands in Nevada. Non-energy leasable minerals, such as potassium and  
20 sodium, which are governed under the Mineral Leasing Act of 1920 are also present, however there are  
21 currently no leases in sage-grouse habitat in Nevada (BLM 2013).

22  
23 The extent of mining activities across the state of Nevada overlaps with the range of sage-grouse  
24 habitat. There are approximately 2 million acres of locatable mineral claims in sage-grouse habitat in  
25 Nevada (BLM 2013). Mining and its associated facilities and infrastructure may result in habitat  
26 fragmentation, direct habitat loss, and indirect impacts decreasing the suitability of otherwise suitable  
27 habitat (USFWS 2013). The specific impacts of mining on sage-grouse and their habitat is largely  
28 unknown (Manier 2013); however the large body of research on energy development, principally oil and  
29 gas development in the eastern part of the sage-grouse range may offer insight to the impacts of other  
30 anthropogenic disturbances, such as mining. The relative consistency in findings from research  
31 evaluating the impacts of different types of oil and gas development on sage-grouse (Naugle et al 2011)  
32 indicates that these findings can be applied to different types of anthropogenic disturbances. In a  
33 comprehensive literature review of the impacts of energy development on sage-grouse conducted by  
34 Naugle et al (2011), all studies reported negative effects, while no positive impacts to sage-grouse  
35 populations or habitat were reported. Negative responses of sage-grouse were consistent regardless of  
36 whether lek dynamics or demographic rates were studied (Naugle et al 2011).

37  
38 Anthropogenic disturbances can negatively impact sage-grouse both directly and indirectly, and through  
39 various mechanisms. Anthropogenic disturbances can directly impact sage-grouse by causing direct loss  
40 of habitat, avoidance behavior to infrastructure (Doherty et al. 2008) and to otherwise suitable habitat  
41 (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, Doherty et al 2008), direct mortality through  
42 collision with infrastructure (Beck et al 2006, Stevens et al 2012), and negative impacts to survival and  
43 reproduction (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, Aldridge and Boyce 2007, Holloran  
44 et al 2007). Indirect impacts on sage-grouse demographics can be caused by noise produced from  
45 operations (Braun et al 2002, Holloran 2005, Kaiser 2006, Blickley et al 2012), vehicle traffic on  
46 associated roads (Lyon and Anderson 2003), and increased predation by raptors perching on associated  
47 power lines (Ellis 1984). In addition, habitat fragmentation resulting from cumulative effects of multiple

1 anthropogenic disturbances across the landscape has been shown to have long term negative impacts  
2 on sage-grouse populations (Johnson et al 2011, Knick and Hanser 2011, Knick et al 2013).  
3

4 The state of Nevada seeks a balanced approach to mineral development and exploration that allows for  
5 the continued activities vital to the Nevada economy and heritage, while conserving and protecting  
6 sage-grouse populations and the sagebrush ecosystem upon which they need to survive. Nevada's  
7 strategy is to provide consultation for project planning to first avoid and minimize impacts to sage-  
8 grouse to the greatest extent possible (see Section 3.0) and then to offset residual impacts through  
9 compensatory mitigation via the Conservation Credit System (see Section 8.0).  
10

## 11 **Goals, Objectives, and Management Actions**

12

13 **Goal 1:** Manage mineral development and exploration in a manner that provides for the long-term  
14 conservation of sage-grouse and their habitat, while providing reasonable access to and development of  
15 the resource.  
16

17 **Objective 1.1:** Achieve no net unmitigated loss of sage-grouse habitat due to new anthropogenic  
18 disturbances, including mineral development and exploration and its associated facilities and  
19 infrastructure within the Sage-Grouse Management Area (SGMA) in order to maintain stable or  
20 increasing sage-grouse populations.  
21

22 **Management Action 1.1.1:** All new proposed mineral development and exploration activities  
23 within the SGMA will trigger SETT Consultation for application of the "avoid, minimize, mitigate"  
24 process (see Section 3.0). This will serve as a centralized impact assessment process that  
25 provides consistent evaluation, reconciliation and guidance for project development.  
26

27 **Management Action 1.1.2:** Avoid new mining activities and its associated facilities and  
28 infrastructure within the SGMA. Locate activities, facilities, and infrastructure in non-habitat  
29 wherever possible. Avoidance of a disturbance within sage-grouse habitat is the preferred  
30 option. If avoidance is not possible, the project proponent must demonstrate why it is not  
31 possible in order for the SETT to consider minimization and mitigation alternatives. The process  
32 to demonstrate that avoidance is not possible (the "avoid process") is determined by the four  
33 management categories. (See Table 3-1 for more details on the avoid process.)  
34

35 **Management Action 1.1.3:** If adverse impacts to sage-grouse and their habitat cannot be  
36 avoided, project proponents will be required to minimize impacts by employing Site Specific  
37 Consultation-Based Design Features (Design Features; see Appendix A) appropriate for the  
38 project. This may include seasonal operational restrictions, noise restrictions, clustering  
39 disturbances, and placing infrastructure in previously disturbed locations.  
40

41 **Management Action 1.1.4:** If impacts from mining activities cannot be avoided and after  
42 minimization options have been exhausted, residual adverse impacts are required to be offset  
43 through compensatory mitigation. Mitigation obligations will be determined through the  
44 Conservation Credit System (see Section 8.0).  
45

46 **Management Action 1.1.5:** Consider the inclusion of sage-grouse habitat objectives (see Section  
47 4.0) in site reclamation plans (Pyke 2011) where feasible.  
48

1 **Objective 1.2:** Explore options to minimize impacts from existing and historic mining activities.  
2

3 **Management Action 1.2.1:** While SETT Consultation and the “avoid, minimize, mitigate” process  
4 does not apply retroactively to existing mining operations, existing operators are encouraged to  
5 incorporate the Design Features outlined in Appendix A and contact the SETT for input on  
6 techniques and practices to avoid and minimize existing impacts to sage-grouse and their  
7 habitat.  
8

9 **Management Action 1.2.2:** Inventory abandoned mine sites within sage-grouse habitat and,  
10 where practical, reclaim sites to meet sage-grouse habitat objectives (see Section 4.0).  
11

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**7.7 RENEWABLE AND NON-RENEWABLE ENERGY PRODUCTION, TRANSMISSION, AND DISTRIBUTION**

The development, transmission, and distribution of renewable and non-renewable energy is a high priority for the state of Nevada. Shifting national and state energy policies, as well as Nevada’s favorable conditions for different types of renewable energy resources, renewable energy development is likely to increase in the State. The SEP supports Nevada’s Renewable Portfolio Standard goal of 25% of Nevada’s energy coming from renewable sources by 2025. In addition, the Nevada Public Utilities Commission this year ruled in accordance with Nevada S.B. 123 requiring the retirement of no less than 300 MW of coal-fired electrical generating capacity on or before December 31, 2013, and not less than 250 MW of coal-fired electrical generating capacity on or before December 31, 2017 (Public Utilities Commission of Nevada 2014). Though there is currently little oil and gas development in Nevada, recent exploration efforts may shift the landscape of oil and gas production in the State.

*Renewable and Non-Renewable Energy Production*

Renewable energy resources in Nevada include geothermal, wind, solar, and biomass. Nevada has vast geothermal resources and is leading the way in geothermal energy development in the United States. As of the end of 2013, of the 3442 MW of installed generating capacity in the U.S. (Matek 2014), Nevada contributes 586 MW (Nevada Division of Minerals 2014a), representing approximately 17% of total installed capacity in the U.S. Nevada is outpacing the rest of the country in developing geothermal projects. Nevada accounted for approximately 41% of the total number of developing project in the U.S. since 2011 (Matek 2014). Nevada currently has 22 operating geothermal plants at 14 different locations (Nevada Division of Minerals 2014a). There are significant geothermal resources in northern Nevada that coincide with the sage-grouse habitat range. Recent geothermal projects that coincide with sage-grouse habitat include the Tuscarora, McGinness Hills, and Jersey Valley Geothermal Power Plants.

Wind energy is one of the fastest growing renewable energy sectors in the U.S.; however the potential viability for development of this resource in Nevada is currently limited. Analysis conducted as part of BLM’s Wind Energy Development Programmatic EIS showed most of Nevada’s wind power classification rated as poor to fair, with only small pockets classified as good to outstanding (BLM 2005). Some of those pockets however, overlap with sage-grouse habitat. Currently there is one wind generation facility in Nevada, the Spring Valley Wind Project; an approximately 150 MW facility located approximately 30 miles east of Ely, NV.

The BLM, as part of a Programmatic Environmental EIS for Solar Energy Development, developed Solar Energy Zones (SEZ), defined as areas well suited for utility scale production of solar energy. Five SEZs were identified for Nevada; all located in Clark and southern Nye counties, outside the range of sage-grouse (BLM 2012). There are currently no solar energy rights of ways within sage-grouse habitat in Nevada (BLM 2013).

There is currently no significant commercial conifer biomass energy economy in Nevada (BLM 2013); however considering that pinyon-juniper expansion is one of the major threats facing sage-grouse in Nevada, the SEP encourages exploring and incentivizing biomass energy development in the State.

Oil production in Nevada has been on a steady decline and is currently limited to approximately 336,000 barrels of oil production annually (Nevada Division of Minerals 2014b). Within sage-grouse habitat it is limited to two major basins, including the Railroad Valley and Pine Valley, with Railroad Valley being the predominant oil-producing valley in Nevada (BLM 2013). However, with recent federal approval of oil



1 and gas exploration near Wells, Nevada (BLM 2014), there may be potential for increased oil and gas  
2 production in the State pending results of the exploration.

3  
4 Renewable energy development can negatively impact sage-grouse both directly and indirectly, and  
5 through various mechanisms. Impacts to sage-grouse from geothermal energy development have not  
6 been assessed in the scientific literature because the development has been too recent to identify  
7 immediate and lag effects (Knick et al 2011). There are currently no commercial solar projects operating  
8 in sage-grouse habitats at this time, so the impacts cannot be assessed. There has been one study on  
9 the effects on sage-grouse from wind energy developments recently completed in south-central  
10 Wyoming, which demonstrated that the relative probabilities of sage-grouse nest and brood success  
11 decreased with proximity to wind turbines (LeBeau 2012). Wind energy generation also requires tall  
12 structures, which can provide artificial nesting and perching substrate for sage-grouse predators (Knight  
13 and Kawashima 1993). Renewable energy development requires many of the same features for  
14 construction and operation as non-renewable energy, so it is anticipated that the potential impacts from  
15 direct habitat loss, habitat fragmentation through roads and power lines, noise, increased human  
16 presence would most likely be similar to those for non-renewable energy production (USFWS 2010). For  
17 more information on the specific impacts from non-renewable energy production, refer to Section 7.6.

#### 18 19 *Energy Transmission and Distribution*

20 Transmission- and distribution-lines (hereafter collectively referred to as power lines) are necessary for  
21 transmitting energy from power production facilities and distributing that power to homes and  
22 businesses. Power lines may directly impact sage-grouse through habitat loss and fragmentation (Knick  
23 et al 2013), as well as direct mortality due to collisions (Beck et al 2006). Indirect habitat loss due to  
24 avoidance of vertical structures, presumably due to increases in predator populations is also a concern  
25 (Manier 2013). Power lines have been shown to decrease male lek attendance (Ellis 1985) and  
26 probability of lek persistence (Walker et al 2007), as well as causing avoidance behavior of brood-rearing  
27 habitat (LeBeau 2012). Power lines have been shown to increase predator distributions and hunting  
28 efficiency resulting in increased predation on sage-grouse (Connelly et al 2004). Preliminary results from  
29 a ten-year study on the impacts of the Falcon-Gonder transmission line on sage-grouse populations  
30 dynamics in Eureka County, Nevada show a negative effect of the transmission line on nest and adult  
31 survival (Gibson et al 2013).

#### 32 33 *The Nevada Approach*

34 The State of Nevada seeks a balanced approach to renewable and non-renewable energy production,  
35 transmission, and distribution that allows for Nevada to achieve its energy goals, while conserving and  
36 protecting sage-grouse populations and the sagebrush ecosystem upon which they need to survive.  
37 Nevada's strategy is to provide consultation for project planning to first avoid and minimize impacts to  
38 sage-grouse to the greatest extent possible (see Section 3.0) and then to offset residual impacts through  
39 compensatory mitigation via the Conservation Credit System (see Section 8.0).

40  
41 Energy development can be managed spatially and temporally to minimize impacts to sage-grouse.  
42 Through tools, such as the Conservation Credit System and the USGS Habitat Suitability Model, siting  
43 analysis will be conducted to avoid and minimize impacts to sage-grouse habitat. In order to meet both  
44 energy goals and achieve effective sage-grouse conservation, close coordination is required with various  
45 stakeholders across the West, such as federal, state, tribal, and local governments and relevant industry  
46 groups.



1 **Goals, Objectives, and Management Actions**  
2

3 **Goal 1:** Manage renewable and non-renewable energy production, transmission, and distribution in a  
4 manner that provides for the long-term conservation of sage-grouse and their habitat, while balancing  
5 the need for continued development of renewable and non-renewable energy resources.  
6

7 **Objective 1.1:** Achieve no net unmitigated loss of sage-grouse habitat due to new anthropogenic  
8 disturbances, including renewable and non-renewable energy production, transmission, and  
9 distribution and its associated facilities and infrastructure within the Sage-Grouse Management Area  
10 (SGMA) in order to maintain stable or increasing sage-grouse populations.  
11

12 **Management Action 1.1.1:** All new proposed energy production, transmission, and distribution  
13 activities, facilities, and infrastructure within the SGMA will trigger SETT Consultation for  
14 application of the “avoid, minimize, mitigate” process (see Section 3.0). This will serve as a  
15 centralized impact assessment process that provides consistent evaluation, reconciliation and  
16 guidance for project development.  
17

18 **Management Action 1.1.2:** Avoid new energy-related activities and its associated facilities and  
19 infrastructure within the SGMA. Locate activities, facilities, and infrastructure in non-habitat  
20 wherever possible. Avoidance of a disturbance within sage-grouse habitat is the preferred  
21 option. If avoidance is not possible, the project proponent must demonstrate why it is not  
22 possible in order for the SETT to consider minimization and mitigation alternatives. The process  
23 to demonstrate that avoidance is not possible (the “avoid process”) is determined by the four  
24 management categories. (See Table 3-1 for more details on the avoid process.) If development  
25 cannot be sited in non-habitat, it should occur in the least suitable habitat.  
26

27 **Management Action 1.1.3:** If adverse impacts to sage-grouse and their habitat cannot be  
28 avoided, project proponents will be required to minimize impacts by employing Site Specific  
29 Consultation-Based Design Features (Design Features; see Appendix A) appropriate for the  
30 project. This may include seasonal operational restrictions, noise restrictions, clustering  
31 disturbances, and placing infrastructure in previously disturbed locations.  
32

33 **Management Action 1.1.4:** Site new linear features in existing corridors (Figure XX) or, at a  
34 minimum, co-locate with existing linear features in Core, Priority, and General Management  
35 Areas.  
36

37 **Management Action 1.1.5:** Reduce and eliminate artificial hunting perches and nesting  
38 substrate for aerial predators by installing anti-nesting and anti-perching devices on new power  
39 lines (see Section 7.3).  
40

41 **Management Action 1.1.6:** Encourage continued research in the development of more effective  
42 perching and nesting deterrent options (see Section 7.3).  
43

44 **Management Action 1.1.7:** Bury distribution power lines of up to 35kV where ground  
45 disturbance can be minimized. Where technology and economic factors allow, bury higher kV  
46 power lines (see Appendix A). Sage-grouse habitat objectives (see Section 4.0) will be  
47 incorporated when reclaiming the site.  
48

1           **Management Action 1.1.8:** Aggressively engage in reclamation/weed control efforts during pre-  
2 and post-project construction.

3  
4           **Management Action 1.1.9:** If impacts from energy activities cannot be avoided and after  
5 minimization options have been exhausted, residual adverse impacts are required to be offset  
6 through compensatory mitigation. Mitigation obligations will be determined through the  
7 Conservation Credit System (see Section 8.0).

8  
9           **Objective 1.2:** Explore options to minimize impacts from existing energy-related activities and  
10 infrastructure.

11  
12           **Management Action 1.2.1:** While SETT Consultation and the “avoid, minimize, mitigate” process  
13 does not apply retroactively to existing energy-related project, existing operators are  
14 encouraged to incorporate the Design Features outlined in Appendix A and contact the SETT for  
15 input on techniques and practices to avoid and minimize existing impacts to sage-grouse and  
16 their habitat.

17  
18           **Management Action 1.2.2:** Work with the energy industry to explore opportunities to install  
19 anti-nesting and anti-perching devices on existing power lines and tall structures and to bury  
20 existing power lines where practical.

21  
22           **Management Action 1.2.3:** Inventory power lines that are no longer in use and look for  
23 opportunities to decommission the lines and reclaim the sites to meet sage-grouse habitat  
24 objectives (see Section 4.0).

25  
26  
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