

3.0 RESULTS

The results of the Inventory are presented below, summarized by access category for land area and resources and grouped by study area. Table 3-1 shows the combined results for all 18 study areas and extrapolated areas, while Tables 3-2 through 3-19 show the results for individual study areas. Also depicted on the bottom of each table is a simplified summary showing accessibility of oil and gas resources. The tables show the results for Federal land access categorization by land area, total oil (used generically to include oil, NGLs, and liquids associated with gas reservoirs), and total natural gas (associated and non-associated with oil reservoirs). Oil and natural gas totals include undiscovered technically recoverable and reserves growth resources. Figures 3-1 through 3-92 show the corresponding pie charts depicting the simplified three-category and the detailed nine-category access hierarchies, the Federal land access categorization maps for each study area, and the corresponding maps showing undiscovered oil and natural gas resources on Federal lands. Tables 3-20 through 3-22 show the results for the areas that were extrapolated by region. The corresponding charts are in Figures 3-93 through 3-98.

Table 3-1. Summary of All Phase III Study Areas—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-1. Simplified Chart of Results, Summary of All Phase III Study Areas—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-2. Chart of Results, Summary of All Phase III Study Areas—Federal Land and Oil and Natural Gas Resources by Access Category

3.1 STUDY AREA FEATURES

Each of the study areas is unique in terms of its Federal land and resources accessibility. Noteworthy features are presented below.

3.1.1 Northern Alaska

- Approximately 70 percent (17.8 million acres) of the Federal land is not accessible (Figures 3-3 and 3-4, Categories 1 through 4). Based on resource estimates, these lands contain 75 percent (13,255 MMbbls) of the technically recoverable Federal oil and 66 percent (52,459 BCF) of the technically recoverable Federal natural gas.
- Approximately 30 percent (7.5 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-3 and 3-4, Categories 5 through 8). Based on resource estimates, these lands contain 25 percent (4,502 MMbbls) of the technically recoverable Federal oil and 34 percent (27,173 BCF) of the technically recoverable Federal natural gas.
- Almost no Federal land in this study area is accessible under standard lease terms (Figures 3-3 and 3-4, Category 9). These lands contain no significant oil or natural gas.

- Coalbed natural gas was assessed by the USGS in early 2007 and is included in this Inventory along with the previously assessed conventional resources.

Table 3-2. Northern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-3. Simplified Chart of Results, Northern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-4. Chart of Results, Northern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-5. Federal Land Access Categorization Map, Northern Alaska Study Area

Figure 3-6. Map of Total Federal Oil, Northern Alaska Study Area

Figure 3-7. Map of Total Federal Natural Gas, Northern Alaska Study Area

3.1.2 Central Alaska – Yukon Flats

- Approximately 99 percent (4.1 million acres) of the Federal land is not accessible (Figures 3-8 and 3-9, Categories 1 through 4). Based on resource estimates, these lands contain almost all of the Federal oil (148.7 MMbbls) and Federal natural gas (2,720 BCF).
- Approximately 1 percent (28 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-8 and 3-9, Categories 5 through 8). These lands contain virtually no Federal oil or natural gas.
- Less than 1 percent (1 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-8 and 3-9, Category 9). These lands contain virtually no oil or natural gas.
- The majority of the Federal land and resources are within the Yukon Flats National Wildlife Refuge and therefore categorized as NLA.

Table 3-3. Central Alaska – Yukon Flats Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-8. Simplified Chart of Results, Central Alaska – Yukon Flats Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-9. Chart of Results, Central Alaska – Yukon Flats Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-10. Federal Land Access Categorization Map, Central Alaska – Yukon Flats Study Area

Figure 3-11. Map of Total Federal Oil, Central Alaska – Yukon Flats Study Area

Figure 3-12. Map of Total Federal Natural Gas, Central Alaska – Yukon Flats Study Area

3.1.3 Southern Alaska

- Approximately 98 percent (10.5 million acres) of the Federal land is not accessible (Figures 3-13 and 3-14, Categories 1 through 4). Based on resource estimates, these lands contain 93 percent (251.1 MMbbls) of the Federal oil and 93 percent (370.6 BCF) of the Federal natural gas.
- Approximately 1 percent (151.5 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-13 and 3-14, Categories 5 through 8). Based on resource estimates, these lands contain 6 percent (16.4 MMbbls) of the Federal oil and 4 percent (16.4 BCF) of the Federal natural gas in the basin.
- Less than 1 percent (57.5 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-13 and 3-14, Category 9). Based on resource estimates, these lands contain 1 percent (2.2 MMbbls) of the Federal oil and 2 percent (6.8 BCF) of the Federal natural gas.
- The dominant surface management agencies are the Fish and Wildlife Service (FWS), National Park Service (NPS) and BLM.

Table 3-4. Southern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-13. Simplified Chart of Results, Southern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-14. Chart of Results, Southern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-15. Federal Land Access Categorization Map, Southern Alaska Study Area

Figure 3-16. Map of Total Federal Oil, Southern Alaska Study Area

Figure 3-17. Map of Total Federal Natural Gas, Southern Alaska Study Area

3.1.4 Eastern Oregon-Washington

- Approximately 33 percent (2.8 million acres) of the Federal land is not accessible (Figures 3-18 and 3-19, Categories 1 through 4). Based on resource estimates, these lands contain 53 percent (1.9 MMbbls) of the Federal oil and 52 percent (443.6 BCF) of the Federal natural gas.
- Approximately 36 percent (3.0 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-18

and 3-19, Categories 5 through 8). Based on resource estimates, these lands contain 16 percent (0.6 MMbbls) of the Federal oil and 18 percent (151.2 BCF) of the Federal natural gas in the basin.

- Approximately 31 percent (2.6 million acres) of the Federal land is accessible under standard lease terms (Figures 3-18 and 3-19, Category 9). Based on resource estimates, these lands contain 30 percent (1.1 MMbbl) of the Federal oil and 30 percent (261.3 BCF) of the Federal natural gas.
- There has been little exploration in this basin due to the relative ineffectiveness of geophysical surveys caused by the extensive presence of volcanic rock.

Table 3-5. Eastern Oregon-Washington Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-18. Simplified Chart of Results, Eastern Oregon-Washington Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-19. Chart of Results, Eastern Oregon-Washington Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-20. Federal Land Access Categorization Map, Eastern Oregon-Washington Study Area

Figure 3-21. Map of Total Federal Oil, Eastern Oregon-Washington Study Area

Figure 3-22. Map of Total Federal Natural Gas, Eastern Oregon-Washington Study Area

3.1.5 Ventura Basin

- Approximately 92 percent (563.2 thousand acres) of the Federal land is not accessible (Figures 3-23 and 3-24, Categories 1 through 4). Based on resource estimates, these lands contain 48 percent (134.2 MMbbls) of the Federal oil and 55 percent (249.0 BCF) of the Federal natural gas.
- Approximately 5 percent (32.3 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-23 and 3-24, Categories 5 through 8). Based on resource estimates, these lands contain 48 percent (134.4 MMbbls) of the Federal oil and 41 percent (185.9 BCF) of the Federal natural gas in the basin.
- Approximately 3 percent (16.0 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-23 and 3-24, Category 9). Based on resource estimates, these lands contain 4 percent (11.9 MMbbls) of the Federal oil and 4 percent (17.7 BCF) of the Federal natural gas.
- The FS and the NPS are the dominant Federal land managers in the Ventura Basin.

Table 3-6. Ventura Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-23. Simplified Chart of Results, Ventura Basin Study Area—Federal

Land and Oil and Natural Gas Resources by Accessibility

Figure 3-24. Chart of Results, Ventura Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-25. Federal Land Access Categorization Map, Ventura Basin Study Area

Figure 3-26. Map of Total Federal Oil, Ventura Basin Study Area

Figure 3-27. Map of Total Federal Natural Gas, Ventura Basin Study Area

3.1.6 Eastern Great Basin

- Approximately 51 percent (27.9 million acres) of the Federal land is not accessible (Figures 3-28 and 3-29, Categories 1 through 4). Based on resource estimates, these lands contain 49 percent (667.6 MMbbls) of the Federal oil and 49 percent (99.3 BCF) of the Federal natural gas.
- Approximately 21 percent (11.3 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-28 and 3-29, Categories 5 through 8). Based on resource estimates, these lands contain 23 percent (310.4 MMbbls) of the Federal oil and 23 percent (46.3 BCF) of the Federal natural gas in the basin.
- Approximately 28 percent (15.4 million acres) of the Federal land is accessible under standard lease terms (Figures 3-28 and 3-29, Category 9). Based on resource estimates, these lands contain 28 percent (377.6 MMbbls) of the Federal oil and 29 percent (58.6 BCF) of the Federal natural gas.
- Federal land comprises nearly 80 percent of the study area with the BLM as the dominant land manager.

Table 3-7. Eastern Great Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-28. Simplified Chart of Results, Eastern Great Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-29. Chart of Results, Eastern Great Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-30. Federal Land Access Categorization Map, Eastern Great Basin Study Area

Figure 3-31. Map of Total Federal Oil, Eastern Great Basin Study Area

Figure 3-32. Map of Total Federal Natural Gas, Eastern Great Basin Study Area

3.1.7 Uinta-Piceance Basin

- Approximately 40 percent (5.3 million acres) of the Federal land is not accessible

(Figures 3-33 and 3-34, Categories 1 through 4). Based on resource estimates, these lands contain 14 percent (52.8 MMbbls) of the Federal oil and 16 percent (2,243 BCF) of the Federal natural gas.

- Approximately 32 percent (4.3 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-33 and 3-34, Categories 5 through 8). Based on resource estimates, these lands contain 59 percent (217.8 MMbbls) of the Federal oil and 62 percent (8,780 BCF) of the Federal natural gas in the basin.
- Approximately 27 percent (3.5 million acres) of the Federal land is accessible under standard lease terms (Figures 3-33 and 3-34, Category 9). Based on resource estimates, these lands contain 26 percent (96.2 MMbbls) of the Federal oil and 22 percent (3,088 BCF) of the Federal natural gas.
- Most of the undiscovered natural gas (greater than 95 percent) is interpreted to be continuous (unconventional) resources.

Table 3-8. Uinta-Piceance Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-33. Simplified Chart of Results, Uinta-Piceance Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-34. Chart of Results, Uinta-Piceance Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-35. Federal Land Access Categorization Map, Uinta-Piceance Basin Study Area

Figure 3-36. Map of Total Federal Oil, Uinta-Piceance Basin Study Area

Figure 3-37. Map of Total Federal Natural Gas, Uinta-Piceance Basin Study Area

3.1.8 Paradox Basin

- Approximately 60 percent (8.7 million acres) of the Federal land is not accessible (Figures 3-38 and 3-39, Categories 1 through 4). Based on resource estimates, these lands contain 46 percent (143.1 MMbbls) of the Federal oil and 38 percent (397.9 BCF) of the Federal natural gas.
- Approximately 14 percent (2.0 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-38 and 3-39, Categories 5 through 8). Based on resource estimates, these lands contain 31 percent (95.7 MMbbls) of the Federal oil and 38 percent (377.4 BCF) of the Federal natural gas.
- Approximately 27 percent (3.9 million acres) of the Federal land is accessible under standard lease terms (Figures 3-38 and 3-39, Category 9). Based on resource estimates, these lands contain 23 percent (72.9 MMbbls) of the Federal oil and 26 percent (273.2 BCF) of the Federal natural gas.

- National Forests in the western part of the basin do not have current land use planning documents.

Table 3-9. Paradox Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-38. Simplified Chart of Results, Paradox Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-39. Chart of Results, Paradox Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-40. Federal Land Access Categorization Map, Paradox Basin Study Area

Figure 3-41. Map of Total Federal Oil, Paradox Basin Study Area

Figure 3-42. Map of Total Federal Natural Gas, Paradox Basin Study Area

3.1.9 San Juan Basin

- Approximately 24 percent (686.2 thousand acres) of the Federal land is not accessible (Figures 3-43 and 3-44, Categories 1 through 4). Based on resource estimates, these lands contain 15 percent (22.2 MMbbls) of the Federal oil and 13 percent (3,199 BCF) of the Federal natural gas.
- Approximately 23 percent (664.2 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-43 and 3-44, Categories 5 through 8). Based on resource estimates, these lands contain 61 percent (91.3 MMbbls) of the Federal oil and 61 percent (15,267 BCF) of the Federal natural gas.
- Approximately 53 percent (1.5 million acres) of the Federal land is accessible under standard lease terms (Figures 3-43 and 3-44, Category 9). Based on resource estimates, these lands contain 25 percent (37.1 MMbbls) of the Federal oil and 26 percent (6,634 BCF) of the Federal natural gas.
- Most of the undiscovered natural gas (approximately 95 percent) is interpreted to be continuous resources.

Table 3-10. San Juan Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-43. Simplified Chart of Results, San Juan Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-44. Chart of Results, San Juan Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-45. Federal Land Access Categorization Map, San Juan Basin Study Area

Figure 3-46. Map of Total Federal Oil, San Juan Basin Study Area

Figure 3-47. Map of Total Federal Natural Gas, San Juan Basin Study Area

3.1.10 Montana Thrust Belt

- Approximately 96 percent (5.4 million acres) of the Federal land is not accessible (Figures 3-48 and 3-49, Categories 1 through 4). Based on resource estimates, these lands contain 97 percent (165.3 MMbbls) of the Federal oil and 99 percent (6.2 TCF) of the Federal natural gas.
- Approximately 3 percent (152.1 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-48 and 3-49, Categories 5 through 8). Based on resource estimates, these lands contain 3 percent (4.3 MMbbls) of the Federal oil and 1 percent (43.0 BCF) of the Federal natural gas.
- Approximately 1 percent (75.6 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-48 and 3-49, Category 9). Based on resource estimates, these lands contain 1 percent (0.9 MMbbls) of the Federal oil and less than 1 percent (22.2 BCF) of the Federal natural gas.
- The USDA-Forest Service is the primary land management agency in the Montana Thrust Belt, with 71 percent of the Federal lands. Almost half of the land that is currently not being leased is undergoing new land use planning.

Table 3-11. Montana Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-48. Simplified Chart of Results, Montana Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-49. Chart of Results, Montana Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-50. Federal Land Access Categorization Map, Montana Thrust Belt Study Area

Figure 3-51. Map of Total Federal Oil, Montana Thrust Belt Study Area

Figure 3-52. Map of Total Federal Natural Gas, Montana Thrust Belt Study Area

3.1.11 Williston Basin

- Approximately 26 percent (1.4 million acres) of the Federal land is not accessible (Figures 3-53 and 3-54, Categories 1 through 4). Based on resource estimates, these lands contain 34 percent (124.1 MMbbls) of the Federal oil and 34 percent (212.7 BCF) of the Federal natural gas.
- Approximately 41 percent (2.1 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-53

and 3-54, Categories 5 through 8). Based on resource estimates, these lands contain 38 percent (140.6 MMbbls) of the Federal oil and 27 percent (165.0 BCF) of the Federal natural gas.

- Approximately 32 percent (1.7 million acres) of the Federal land is accessible under standard lease terms (Figures 3-53 and 3-54, Category 9). Based on resource estimates, these lands contain 28 percent (102.3 MMbbls) of the Federal oil and 27 percent (165.3 BCF) of the Federal natural gas.
- The majority of the natural gas is continuous-type resource, and the basin contains an active continuous-type oil play.

Table 3-12. Williston Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-53. Simplified Chart of Results, Williston Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-54. Chart of Results, Williston Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-55. Federal Land Access Categorization Map, Williston Basin Study Area

Figure 3-56. Map of Total Federal Oil, Williston Basin Study Area

Figure 3-57. Map of Total Federal Natural Gas, Williston Basin Study Area

3.1.12 Powder River Basin

- Approximately 26 percent (3.1 million acres) of the Federal land is not accessible (Figures 3-58 and 3-59, Categories 1 through 4). Based on resource estimates, these lands contain 4 percent (51 MMbbls) of the Federal oil and 10 percent (874 BCF) of the Federal natural gas.
- Approximately 47 percent (5.7 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-58 and 3-59, Categories 5 through 8). Based on resource estimates, these lands contain 79 percent (1,022 MMbbls) of the Federal oil and 77 percent (7,035 BCF) of the Federal natural gas in the basin.
- Approximately 27 percent (3.2 million acres) of the Federal land is accessible under standard lease terms (Figures 3-58 and 3-59, Category 9). Based on resource estimates, these lands contain 17 percent (216 MMbbls) of the Federal oil and 13 percent (1,228 BCF) of the Federal natural gas.
- Almost all of the undiscovered natural gas is expected to be found in coal beds (98 percent).
- Among the study areas, this area has the highest proportion of split estate lands (59 percent of the Federal oil and gas ownership is on split-estate lands).

Table 3-13. Powder River Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-58. Simplified Chart of Results, Powder River Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-59. Chart of Results, Powder River Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-60. Federal Land Access Categorization Map, Powder River Basin Study Area

Figure 3-61. Map of Total Federal Oil, Powder River Basin Study Area

Figure 3-62. Map of Total Federal Natural Gas, Powder River Basin Study Area

3.1.13 Wyoming Thrust Belt

- Approximately 57 percent (2.4 million acres) of the Federal land is not accessible (Figures 3-63 and 3-64, Categories 1 through 4). Based on resource estimates, these lands contain 33 percent (14.7 MMbbls) of the Federal oil and 31 percent (87.5 BCF) of the Federal natural gas.
- Approximately 30 percent (1.3 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-63 and 3-64, Categories 5 through 8). Based on resource estimates, these lands contain 51 percent (22.7 MMbbls) of the Federal oil and 76 percent (479.7 BCF) of the Federal natural gas.
- Approximately 13 percent (553.9 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-63 and 3-64, Category 9). Based on resource estimates, these lands contain 16 percent (7.0 MMbbls) of the Federal oil and 10 percent (65.4 BCF) of the Federal natural gas.
- This study area contains only two plays; one is coalbed natural gas and the other is conventional.

Table 3-14. Wyoming Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources Affected by Access Category

Figure 3-63. Simplified Chart of Results, Wyoming Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-64. Chart of Results, Wyoming Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-65. Federal Land Access Categorization Map, Wyoming Thrust Belt Study Area

Figure 3-66. Map of Total Federal Oil, Wyoming Thrust Belt Study Area

Figure 3-67. Map of Total Federal Natural Gas, Wyoming Thrust Belt Study Area

3.1.14 Southwestern Wyoming

- Approximately 28 percent (3.2 million acres) of the Federal land in the basin is not accessible (Figures 3-68 and 3-69, Categories 1 through 4). Based on resource estimates, these lands contain 19 percent (393 MMbbls) of the Federal oil and 18 percent (12,311 BCF) of the Federal natural gas.
- Approximately 53 percent (6.0 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-68 and 3-69, Categories 5 through 8). Based on resource estimates, these lands contain 71 percent (1,472 MMbbls) of the Federal oil and 70 percent (47,715 BCF) of the Federal natural gas.
- Approximately 19 percent (2.2 million acres) of the Federal land is accessible under standard lease terms (Figures 3-63 and 3-64, Category 9). Based on resource estimates, these lands contain 10 percent (216.4 MMbbls) of the Federal oil and 12 percent (8,007 BCF) of the Federal natural gas.
- Almost all of the undiscovered natural gas (97 percent) is interpreted to be in continuous (unconventional) accumulations.
- The geography of the Federal land is highly complex due a checkerboard pattern of ownership resulting from railroad land grants.

Table 3-15. Southwestern Wyoming Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-68. Simplified Chart of Results, Southwestern Wyoming Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-69. Chart of Results, Southwestern Wyoming Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-70. Federal Land Access Categorization Map, Southwestern Wyoming Study Area

Figure 3-71. Map of Total Federal Oil, Southwestern Wyoming Study Area

Figure 3-72. Map of Total Federal Natural Gas, Southwestern Wyoming Study Area

3.1.15 Denver Basin

- Approximately 39 percent (1.0 million acres) of the Federal land is not accessible (Figures 3-73 and 3-74, Categories 1 through 4). Based on resource estimates, these lands contain 19 percent (3.3 MMbbls) of the Federal oil and 36 percent (31.9 BCF) of the Federal natural gas.
- Approximately 28 percent (741.9 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-73 and 3-74, Categories 5 through 8). Based on resource estimates, these lands contain 69 percent (11.8 MMbbls) of the Federal oil and 52 percent (45.5 BCF) of

the Federal natural gas.

- Approximately 33 percent (870.2 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-73 and 3-74, Category 9). Based on resource estimates, these lands contain 12 percent (2.0 MMBbls) of the Federal oil and 12 percent (10.3 BCF) of the Federal natural gas.
- Outside of FS lands, this study area contains limited Federal lands, which are widely dispersed.

Table 3-16. Denver Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-73. Simplified Chart of Results, Denver Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-74. Chart of Results, Denver Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-75. Federal Land Access Categorization Map, Denver Basin Study Area

Figure 3-76. Map of Total Federal Oil, Denver Basin Study Area

Figure 3-77. Map of Total Federal Natural Gas, Denver Basin Study Area

3.1.16 Florida Peninsula

- Approximately 94 percent (1.9 million acres) of the Federal land is not accessible (Figures 3-78 and 3-79, Categories 1 through 4). Based on resource estimates, these lands contain 81 percent (59.8 MMBbls) of the Federal oil and 81 percent (260.7 BCF) of the Federal natural gas.
- Approximately 6 percent (114.4 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-78 and 3-79, Categories 5 through 8). Based on resource estimates, these lands contain 19 percent (14.0 MMBbls) of the Federal oil and 19 percent (62.3 BCF) of the Federal natural gas.
- Less than 1 percent (1.1 thousand acres) of the Federal land in the study area is accessible under standard lease terms (Figures 3-78 and 3-79, Category 9). These lands contain virtually no Federal oil or natural gas.
- The Department of the Interior has agreed in principle to acquire the mineral rights under Big Cypress National Preserve, Florida Panther National Wildlife Refuge, and Ten Thousand Islands National Wildlife Refuge from Collier Resources Company, virtually ensuring no new oil and gas development in the three areas.¹

Table 3-17. Florida Peninsula Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

¹ Interior Reaches Agreement to Acquire Mineral Rights in Everglades, Settles Litigation on Offshore Oil and Gas Leases in Destin Dome. See the website: <http://www.fws.gov/southeast/news/2002/n02-002.html>

Figure 3-78. Simplified Chart of Results, Florida Peninsula Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-79. Chart of Results, Florida Peninsula Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-80. Federal Land Access Categorization Map, Florida Peninsula Study Area

Figure 3-81. Map of Total Federal Oil, Florida Peninsula Study Area

Figure 3-82. Map of Total Federal Natural Gas, Florida Peninsula Study Area

3.1.17 Black Warrior Basin

- Approximately 83 percent (574.4 thousand acres) of the Federal land is not accessible (Figures 3-83 and 3-84, Categories 1 through 4). Based on resource estimates, these lands contain 65 percent of the Federal oil (0.6 MMbbls) and 58 percent (227.2 BCF) of the Federal natural gas.
- Approximately 14 percent (97.5 thousand acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-83 and 3-84, Categories 5 through 8). Based on resource estimates, these lands contain 29 percent of the Federal oil (0.3 MMbbls) and 32 percent (126.2 BCF) of the Federal natural gas.
- Approximately 3 percent (21.8 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-83 and 3-84, Category 9). Based on resource estimates, these lands contain 5 percent of the Federal oil (0.05 MMbbls) and 10 percent (37.5 BCF) of the Federal natural gas.
- The Federal lands in this study area contain only about 1 MMbbls of oil out of a total of 13 MMbbls for all lands in the study area.
- This study area has significant split-estate lands comprising Federal surface and non-Federal mineral estate.

Table 3-18. Black Warrior Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-83. Simplified Chart of Results, Black Warrior Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-84. Chart of Results, Black Warrior Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-85. Federal Land Access Categorization Map, Black Warrior Basin Study Area

Figure 3-86. Map of Total Federal Oil, Black Warrior Basin Study Area

Figure 3-87. Map of Total Federal Natural Gas, Black Warrior Basin Study Area

3.1.18 Appalachian Basin

- Approximately 46 percent (2.5 million acres) of the Federal land is not accessible (Figures 3-88 and 3-89, Categories 1 through 4). Based on resource estimates, these lands contain 40 percent (13.4 MMbbls) of the Federal oil and 41 percent (984.7 BCF) of the Federal natural gas.
- Approximately 42 percent (2.2 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-88 and 3-89, Categories 5 through 8). Based on resource estimates, these lands contain 48 percent (16.0 MMbbls) of the Federal oil and 45 percent (1.1 TCF) of the Federal natural gas.
- Approximately 13 percent (691.7 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-88 and 3-89, Category 9). Based on resource estimates, these lands contain 12 percent (3.9 MMbbls) of the Federal oil and 14 percent (346.7 BCF) of the Federal natural gas.
- Most of the undiscovered gas resource (94 percent) is expected to occur in continuous accumulations.
- Coalbed natural gas accounts for about 13 percent of the total undiscovered continuous gas.

Table 3-19. Appalachian Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-88. Simplified Chart of Results, Appalachian Basin Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-89. Chart of Results, Appalachian Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-90. Federal Land Access Categorization Map, Appalachian Basin Study Area

Figure 3-91. Map of Total Federal Oil, Appalachian Basin Study Area

Figure 3-92. Map of Total Federal Natural Gas, Appalachian Basin Study Area

3.1.19 Extrapolated Results for Alaska

- Approximately 96 percent (35.7 million acres) of the Federal land is not accessible (Figures 3-93 and 3-94, Categories 1 through 4). Based on resource estimates, these lands contain 89 percent (557 MMbbls) of the Federal oil and 90 percent (2,108 BCF) of the Federal natural gas.
- Approximately 4 percent (1.7 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-93 and 3-94, Categories 5 through 8). Based on resource estimates, these lands contain 11 percent (66 MMbbls) of the Federal oil and 10 percent (227 BCF) of the Federal natural gas.

- Less than 1 percent (70 thousand acres) of the Federal land is accessible under standard lease terms (Figures 3-93 and 3-94, Category 9). Based on resource estimates, these lands contain no significant Federal oil or natural gas resources.

Table 3-20. Extrapolated Results for Alaska —Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-93. Simplified Chart of Results, Extrapolated Results for Alaska —Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-94. Chart of Results, Extrapolated Results for Alaska —Federal Land and Oil and Natural Gas Resources by Access Category

3.1.20 Extrapolated Results for the Western Region

- Approximately 55 percent (25.2 million acres) of the Federal land is not accessible (Figures 3-95 and 3-96, Categories 1 through 4). Based on resource estimates, these lands contain 57 percent (2,890 MMbbls) of the Federal oil and 58 percent (8,529 BCF) of the Federal natural gas.
- Approximately 23 percent (10.3 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-95 and 3-96, Categories 5 through 8). Based on resource estimates, these lands contain 21 percent (1,068 MMbbls) of the Federal oil and 21 percent (3,071 BCF) of the Federal natural gas.
- Approximately 22 percent (10.2 million acres) of the Federal land is accessible under standard lease terms (Figures 3-95 and 3-96, Category 9). Based on resource estimates, these lands contain 22 percent (1,106 MMbbls) of the Federal oil and 21 percent (3,131 BCF) of the Federal natural gas.

Table 3-21 Extrapolated Results for the Western Region —Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-95. Simplified Chart of Results, Extrapolated Results for the Western Region —Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-96. Chart of Results, Extrapolated Results for the Western Region —Federal Land and Oil and Natural Gas Resources by Access Category

3.1.21 Extrapolated Results for the Eastern Region

- Approximately 41 percent (5.1 million acres) of the Federal land is not accessible (Figures 3-97 and 3-98, Categories 1 through 4). Based on resource estimates, these lands contain 27 percent (25.0 MMbbls) of the Federal oil and 31 percent (449.5 BCF) of the Federal natural gas.
- Approximately 47 percent (5.8 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard lease terms (Figures 3-97 and 3-98, Categories 5 through 8). Based on resource estimates, these lands

contain 58 percent (54.2 MMbbls) of the Federal oil and 55 percent (782.5 BCF) of the Federal natural gas.

- Approximately 12 percent (1.51 million acres) of the Federal land is accessible under standard lease terms (Figures 3-97 and 3-98, Category 9). Based on resource estimates, these lands contain 15 percent (14.0 MMbbls) of the Federal oil and 14 percent (202.8 BCF) of the Federal natural gas.

Table 3-22 Extrapolated Results for the Eastern Region —Federal Land and Oil and Natural Gas Resources by Access Category

Figure 3-97. Simplified Chart of Results, Extrapolated Results for the Eastern Region —Federal Land and Oil and Natural Gas Resources by Accessibility

Figure 3-98. Chart of Results, Extrapolated Results for the Eastern Region —Federal Land and Oil and Natural Gas Resources by Access Category

3.2 REGIONAL FEATURES

Figure 3-99 compares the access charts for the top five basins in each of the following categories: total Federal land, total Federal oil, and total Federal natural gas. The pie chart areas are scaled proportionately to one another within each category. Northern Alaska dominates both the resource categories, followed by the Rocky Mountain basins; however, the Eastern Great Basin contains the most Federal land.

Figure 3-99. Charts of the Top Five Areas

Figure 3-100 is a map showing the Inventory study areas and extrapolated areas with the access category charts compiled by region, relatively sized, by total resources. The largest amount of oil and gas resources are found in the Western Region (206.4 quadrillion BTU). Alaska is second (195.7 quadrillion BTU), followed by the Eastern Region, a distant third in rank (5.7 quadrillion BTU).

About 35 percent of the resources in the Western Region are inaccessible, 37 percent are accessible with additional restrictions (primarily because of timing limitations and the impact of COAs), and 29 percent are accessible under standard lease terms.

About 73 percent of the resources in the Alaska Region are inaccessible, 27 percent are accessible with additional restrictions, and less than 1 percent are accessible under standard lease terms.

About 49 percent of the resources in the Eastern Region are inaccessible, 39 percent are accessible with additional restrictions, and 12 percent are accessible under standard lease terms.

Figure 3-100. Regional Charts