CONTENTS

ACRONYMS AND ABBREVIATIONS

1.0 INTRODUCTION 1-1

2.0 METHODOLOGY 2-1

2.1 Factors Common to All Resources 2-2

2.2 Resource-specific Factors 2-4

3.0 PAST, PRESENT, AND REASONABLY FORESEEABLE DEVELOPMENT 3-1

3.1 Coal 3-1
3.1.1 Past and Present Development 3-1
3.1.1.1 Wyoming 3-1
3.1.1.2 Montana 3-2
3.1.2 Reasonably Foreseeable Development 3-4
3.1.2.1 Wyoming 3-5
3.1.2.2 Montana 3-7
3.1.3 Data Sources 3-9
3.1.4 Assumptions 3-9

3.2 Power Plants 3-10
3.2.1 Past and Present Development 3-10
3.2.1.1 Wyoming 3-10
3.2.1.2 Montana 3-10
3.2.2 Reasonably Foreseeable Development 3-11
3.2.2.1 Wyoming 3-12
3.2.2.2 Montana 3-12
3.2.3 Data Sources 3-13
3.2.4 Assumptions 3-13

3.3 Wind Energy 3-16
3.3.1 Past and Present Development 3-16
3.3.2 Reasonably Foreseeable Development 3-16
3.3.3 Data Sources 3-17
3.3.4 Assumptions 3-17

3.4 Transportation 3-18
3.4.1 Past and Present Development 3-18
3.4.1.1 Wyoming 3-18
3.4.1.2 Montana 3-18
3.4.2 Reasonably Foreseeable Development 3-18
3.4.2.1 Wyoming 3-18
3.4.2.2 Montana 3-19

3.4.3 Data Sources 3-21
3.4.4 Assumptions 3-21

3.5 Coal Technology 3-22
3.5.1 Past and Present Development 3-22
3.5.1.1 Wyoming 3-22
3.5.1.2 Montana 3-22
3.5.2 Reasonably Foreseeable Development 3-22
3.5.2.1 Wyoming 3-23
3.5.2.2 Montana 3-25
3.5.3 Data Sources 3-26
3.5.4 Assumptions 3-26

3.6 Carbon Sequestration 3-26
3.6.1 Past and Present Development 3-26
3.6.2 Reasonably Foreseeable Development 3-26
3.6.3 Data Sources 3-27
3.6.4 Assumptions 3-27

3.7 Transmission Lines 3-27
3.7.1 Past and Present Development 3-27
3.7.2 Reasonably Foreseeable Development 3-28
3.7.3 Data Sources 3-30
3.7.4 Assumptions 3-30

3.8 Other Mines 3-30
3.8.1 Past and Present Development 3-30
3.8.2 Reasonably Foreseeable Development 3-31
3.8.3 Data Sources 3-31
3.8.4 Assumptions 3-33

3.9 Oil and Gas 3-33
3.9.1 Past and Present Development 3-33
3.9.1.1 Conventional Oil and Gas 3-33
3.9.1.2 CBNG 3-34
3.9.2 Reasonably Foreseeable Development 3-35
3.9.2.1 Conventional Oil and Gas 3-37
3.9.2.2 CBNG 3-38
3.9.3 Data Sources 3-40
3.9.4 Assumptions 3-40

3.10 Pipelines 3-40
3.10.1 Past and Present Development 3-40
3.10.2 Reasonably Foreseeable Development 3-40
3.10.3 Data Sources 3-43
3.10.4 Assumptions 3-43

3.11 Refineries 3-45
3.11.1 Past and Present Development 3-45

3.11.2 Reasonably Foreseeable Development 3-46
3.11.3 Data Sources 3-46
3.11.4 Assumptions 3-46

3.12 Reservoirs and Other Water Developments 3-46
3.12.1 Past and Present Development 3-47
3.12.2 Reasonably Foreseeable Development 3-47
3.12.3 Data Sources 3-47
3.12.4 Assumptions 3-47

3.13 Other Industrial Manufacturing 3-47
3.13.1 Past and Present Development 3-47
3.13.2 Reasonably Foreseeable Development 3-48
3.13.3 Data Sources 3-48
3.13.4 Assumptions 3-48

3.14 Other Development 3-48
3.14.1 Past and Present Development 3-48
3.14.2 Reasonably Foreseeable Development 3-49
3.14.2.1 Highways and Airports 3-49
3.14.2.2 Other Public Facilities 3-50
3.14.2.3 General Industrial and Commercial Development 3-51
3.14.3 Data Sources 3-51
3.14.4 Assumptions 3-51

3.15 Relationship Among Projects 3-52

4.0 LIST OF PREPARERS 4-1

5.0 REFERENCES 5-1

5.1 Cited References 5-1

5.2 Additional References 5-8

APPENDIX A – SUPPORTING TABLES AND FIGURES – COAL MINE SUBREGIONS

APPENDIX B – GIS DATA FOR ACTUAL 2003 (ORIGINAL BASE YEAR) DISTURBANCE

APPENDIX C – SUPPORTING FIGURES AND TABLES – TASK 1D STUDY AREA

APPENDIX D – SUPPORTING FIGURES AND TABLES – TASK 3D STUDY AREA

APPENDIX E – METHODOLOGY AND ASSUMPTIONS FOR OIL AND GAS RFD PROJECTIONS

LIST OF TABLES

3-1 Projected Coal Mine Total Capital Investment by Year (million dollars) 3-7
3-2 U.S. Nuclear Resources Commission Applications for In Situ Recovery Uranium Projects in the Wyoming PRB Study Area 3-32
3-3 Projection of Conventional Oil and Gas Activity 3-37
3-4 Projection of CBNG Activity 3-40
3-5 Proposed Pipeline Projects in the Wyoming PRB Study Area 3-42

LIST OF FIGURES

1-1 Montana and Wyoming Study Area 1-3
1-2 Federal Land Management 1-4
1-3 Surface Ownership 1-5
1-4 Federal Mineral Ownership 1-6
3-1 Existing Coal Mine, Power Plant, and Railroad Development 3-3
3-2 RFD Power Plants, Wind Energy Projects, and Railroads 3-14
3-3 RFD DM&E Railroad 3-20
3-4 Existing Transmission Lines, Other Mines, and Reservoirs 3-29
3-5 Existing and Historic Oil and Gas Wells 3-36
3-6 Existing Major Pipelines 3-41
3-7 RFD Major Pipelines 3-44