



**Board of Minerals
and Environment**

523 East Capitol Avenue
Pierre, South Dakota 57501-3182
(605)773-3886

The public may participate in-person or remotely. The instructions for joining the meeting remotely or via telephone, the full board packet, and the link for live streaming are available on the South Dakota Boards and Commissions Portal at <https://boardsandcommissions.sd.gov/Meetings.aspx?BoardID=67>.

AGENDA

Board of Minerals and Environment
Matthew Training Center
523 East Capitol Avenue
Pierre, SD

August 20, 2026
10:00 a.m. Central Time

Call to order and roll call

Approve agenda

Approve June 18, 2026, meeting minutes

Mining issues consent calendar – Tom Cline

Powertech (USA), Inc request for approval of Socioeconomic Contractor for proposed large-scale mine permit application – Eric Holm

Public comment period in accordance with SDCL 1-25-1

Executive Session in accordance with SDCL 1-25-2 (3) to discuss Clean Nuclear Energy Corporation Uranium Exploration Permit Application; EXNI 453 with Board Counsel

Election of Officers

Upcoming meetings

Adjourn

Notice is given to individuals with disabilities that the meeting is being held in a physically accessible location. Individuals requiring assistive technology or other services in order to participate in the meeting or materials in an alternate format should contact Brian Walsh, Nondiscrimination Coordinator, by calling (605) 773-5559 as soon as possible but no later than two business days prior to the meeting to ensure accommodations are available.

The audio recording for this meeting is available on the South Dakota Boards and Commissions Portal at <http://boardsandcommissions.sd.gov/Meetings.aspx?BoardID=67>

Minutes of the
Board of Minerals and Environment
Telephone Conference Call Meeting
523 East Capitol Avenue
Pierre, South Dakota

June 18, 2026
10:00 a.m. Central Time

CALL TO ORDER: The meeting was called to order by Chairman Glenn Blumhardt. The roll was called, and a quorum was present.

The meeting was streaming live on SD.net, a service of South Dakota Public Broadcasting.

BOARD MEMBERS PRESENT: Glenn Blumhardt, Bob Ewing, Gregg Greenfield, Jessica Gruenwald, Gary Haag, Doyle Karpen, Rhett Miller, Bob Morris, and Laurie Schultz.

BOARD MEMBERS ABSENT: None.

OTHERS PRESENT: Roberta Hudson and Tom Cline, DANR Minerals, Mining, and Superfund Program; Kayla Fawcett, DANR Solid Waste Management Program, David McVey, Attorney General's Office; Mark Nelson, Homestake Mining Company/Richmond Hill; Jasmine McCauley, Wharf Resources (USA), Inc.; Timm Comer, DTRC, LLC, and Megan O'Brien, South Dakota Searchlight.

APPROVE AGENDA: Motion by Karpen, seconded by Miller, to approve the agenda. The motion carried unanimously.

APPROVAL OF MINUTES FROM MAY 18-20, 2026, MEETING: Motion by Ewing, seconded by Karpen, to approve the minutes from the May 18-20, 2026, Board of Minerals and Environment meeting. A roll call vote was taken, and the motion carried unanimously.

MINING ISSUES CONSENT CALENDAR: Prior to the meeting the board received a copy of the consent calendar (see attachment).

Tom Cline, Minerals, Mining, and Superfund Program, was available for questions from the board. There were no questions.

Motion by Ewing, seconded by Schultz, to approve the consent calendar, as presented. A roll call vote was taken, and the motion carried unanimously.

ORAL MINING REPORTS: The annual oral mining reports were presented to the board by representatives of the large-scale gold mining companies. The representatives reported on water

treatment, production, and reclamation activities during 2025 and plans for 2026. The annual oral mining presentations are required by statute.

Mark Nelson presented the annual reports for Homestake Mining Company's Mine Permits 332, 456, and 445.

Jasmine McCauley presented the annual report for Wharf Resources (USA), Inc.

Timm Comer presented the annual report for DTRC, LLC.

UPDATE ON BROHM EPA SUPERFUND SITE: Roberta Hudson, DANR Minerals, Mining, and Superfund Program, presented the annual update for the Brohm Superfund site.

The slide presentations for the oral mining reports and Brohm EPA Superfund Site are available at <https://boardsandcommissions.sd.gov/Meetings.aspx?BoardID=67>.

PUBLIC COMMENT PERIOD IN ACCORDANCE WITH SDCL 1-25-1: There were no public comments.

UPCOMING BOARD MEETINGS: The next scheduled meeting is August 20, 2026.

Mr. Karpen thanked Gregg Greenfield and Gary Haag for serving on the board. They are both resigning effective June 30, 2026.

ADJOURN: Motion by Karpen, seconded by Gruenwald, to adjourn the meeting. The motion carried unanimously.

Secretary, Board of Minerals
and Environment

Date

Consent Calendar
South Dakota Board of Minerals & Environment

June 18, 2026

<u>License Holder</u>	<u>License No.</u>	<u>Site No.</u>	<u>Surety Amount</u>	<u>Surety Company or Bank</u>	<u>DANR Recommendation</u>
<u>Release of Liability & Surety Release:</u>					
Bob Bak Construction Ravina, SD	83-61		\$20,000	American State Bank – Pierre First National Bank – Pierre Wells Fargo Bank – White River	Release Liability & \$20,000
		61002	N1/2 Section 2; T112N-R76W, Hughes County		
<u>Release of Liability:</u>					
Edmunds County Highway Dept. Ipswich, SD	83-161		Exempt	NA	Release Liability
		161007	NW1/4 Section 3; T120N-R73W, Potter County		
Faulk County Highway Dept. Faulkton, SD	83-103		Exempt	NA	Release Liability
		103002	NW1/4 Section 4; T118N-R66W, Faulk County		
Walworth County Highway Dept. Selby, SD	83-7		Exempt	NA	Release Liability
		7035	SW1/4 Section 3; T124N-R76W, Walworth County		

Consent Calendar
South Dakota Board of Minerals & Environment

June 18, 2026

<u>License Holder</u>	<u>License No.</u>	<u>Site No.</u>	<u>Surety Amount</u>	<u>Surety Company or Bank</u>	<u>DANR Recommendation</u>
<u>Release of Liability:</u>					
Harding County Highway Dept. Buffalo, SD	83-66		Exempt	NA	Release Liability
		66003	SW1/4 Section 21; T16N-R6E, Harding County		
		66004	Section 30; T22N-R2E, Harding County		
		66006	NW1/4 Section 33 and NE1/4 Section 32; T16N-R4E, Harding County		
		66015	SW1/4 Section 4; T21N-R9E, Harding County		
		66016	NE1/4 Section 7; T15N-R8E, Harding County		
		66035	SE1/4 Section 31 & SW1/4 Section 32; T17N-R4E, Harding County		
		66037	S1/2 Section 14; T17N-R2E, Harding County		
		66040	S1/2 NW1/4 Section 22; T22N-R7E, Harding County		
		66041	N1/2 NE1/4 Section 32 and SW1/4 SE1/4 Section 29; T23N-R7E, Harding County		
		66043	S1/2 NE1/4 Section 10; T17N-R9E, Harding County		
		66046	SW1/4 Section 10 and NE1/4 Section 15; T17N-R9E, Harding County		
McPherson County Highway Dept. Leola, SD	83-41		Exempt	NA	Release Liability
		41018	NW1/4 Section 1; T125N-R73W, McPherson County		

Consent Calendar
South Dakota Board of Minerals & Environment

June 18, 2026

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<u>Release of Liability:</u>					
Dan L. Meyers DBA Meyers Sand & Gravel Huron, SD	83-176		\$20,000	Sun Surety Insurance Company	Release Liability
		176005	NW1/4 Section 3; T110N-R64W, Beadle County		
Ogan Construction Pierre, SD	95-538		\$10,000	United Fire & Casualty Company	Release Liability
		538002	N1/2 Section 2; T112N-R76W, Hughes County		
R & J Gravel & Trucking Chamberlain, SD	07-841		\$20,000	Sun Surety Insurance Company	Release Liability
		841002	Section 26; T106N-R67W, Jerauld County		
		841003	NW1/4 Section 33; T104N-R61W, Davison County		
Rechnagel Construction Inc. Hurley, SD	83-135		\$20,000	United Fire & Casualty Company	Release Liability
		135030	N1/2 Section 13; T99N-R54, Turner County		
Sterzinger Crushing Inc. Taunton, MN	15-997		\$20,000	First Security Bank – Hendricks, MN	Release Liability
		997003	NE1/4 Section 13; T111N-R52W, Brookings County		
		997005	NE1/4 NW1/4 Section 36; T111N-R48W, Brookings County		

Consent Calendar
South Dakota Board of Minerals & Environment

					<i>August 20, 2026</i>
<u>License Holder</u>	<u>License No.</u>	<u>Site No.</u>	<u>Surety Amount</u>	<u>Surety Company or Bank</u>	<u>DANR Recommendation</u>
<u>Transfer of Liability & Surety Release:</u>					
Rodney G. Nelsen Vermillion, SD	05-813		\$1,500	Bank of the West – Vermillion, SD	Transfer Liability & Release \$1,500
		813001	SW1/4 Section 13; T94N-R54W, Yankton County		
Transfer to:					
John Landeen Irene, SD	26-1162		\$3,850	First Premier Bank – Wakonda, SD	
Lonny Potts Gettysburg, SD	16-1015		\$500	Great Western Bank – Gettysburg, SD	Transfer Liability & Release \$500
		1015001	SE1/4 Section 29; T117N-R74W, Potter County		
Transfer to:					
Potter County Highway Dept. Gettysburg, SD	83-147		Exempt	NA	
<u>Release of Liability & Surety Release:</u>					
Steve Atteberry Colome, SD	12-931		\$1,000	First Fidelity Bank – Colome, SD	Release Liability & \$1,000
		931001	SW1/4 Section 34; T97N-R75W, Tripp County		

Consent Calendar
South Dakota Board of Minerals & Environment

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<u>Release of Liability & Surety Release:</u>					
Boyden Construction Limited Partnership Platte, SD	85-313		\$8,000	First Fidelity Bank – Platte, SD	Release Liability & \$8,000
		313011	NW1/4 Section 12; T100N-R67W, Charles Mix County		
Wayne Feistner Woonsocket, SD	14-979		\$3,500	First National Bank - Woonsocket	Release Liability & \$3,500
		979001	SE1/4 Section 26; T107N-R63W, Jerauld County		
		979002	NE1/4 Section 35; T107N-R63W, Jerauld County		
Bruce Haines Mitchell, SD	95-554		\$500	CorTrust Bank – Mitchell, SD	Release Liability & \$500
		554001	SE1/4 Section 8; T103N-R66W, Aurora County		
Wayne Malsam Ipswich, SD	97-606		\$2,000	First National Bank – Pierre, SD Plains Commerce Bank – Aberdeen, SD	Release Liability & \$2,000
		606003	NE1/4 Section 9; T122N-R73W, Edmunds County		
Sweetman Partners LLP Sioux Falls, SD	16-998		\$20,000	First National Bank – Sioux Falls, SD	Release Liability & \$20,000
		998001	S1/2 and NW1/4 Section 2 & SE1/4 Section 3 & NE1/4 Section 11; T101N-R49W, Minnehaha County		

Consent Calendar
South Dakota Board of Minerals & Environment

					<i>August 20, 2026</i>
<u>License Holder</u>	<u>License No.</u>	<u>Site No.</u>	<u>Surety Amount</u>	<u>Surety Company or Bank</u>	<u>DANR Recommendation</u>
<u>Release of Liability:</u>					
Feistner Gravel & Excavation Woonsocket, SD	03-759		\$69,363.38	NA	Release Liability
		759001	SE1/4 Section 18; T108N-R64W, Jerauld County		
Mid-Plains Backhoeing Pierre, SD	94-513		\$1,000	First National Bank – Pierre, SD	Release Liability
		513002	Section 25; T110N-R77W, Hughes County		
Morris Inc. Ft. Pierre, SD	83-2		\$100,000	United Fire & Casualty Company Cedar Rapids, IA	Release Liability
		2055	NE1/4 Section 8; T109N-R67W, Hand County		
Oban Construction LLC Ipswich, SD	83-35		\$20,000	Sun Surety Insurance Company Rapid City	Release Liability
		35008	SE1/4 Section 34; T121N-R73W, Edmunds County		
Stippich Inc. Hettinger, ND	83-214		\$5,000	Dacotah Bank – Hettinger, ND	Release Liability
		214003	E1/2 NE1/4 and E1/2 SE1/4 Section 6; T22N-R12E, Perkins County		



7th of August 2026

Board of Minerals and Environment
SD Department of Agricultural and Natural Resources
523 E Capital Avenue
Pierre, South Dakota 57501

RECEIVED

Aug 6, 2026
MINERALS, MINING, &
SUPERFUND PROGRAM

RE: Powertech (USA) Inc., Large Scale Mine Permit Application - Approval of Socioeconomic Contractor

Dear Board of Minerals and Environment:

Please consider this letter a request for the South Dakota Board of Minerals and Environment (Board) to review and approve the qualifications of Western Water Consultants, Inc. d/b/a WWC Engineering (WWC) to update the Socioeconomic Assessment of the potential effects of the proposed Dewey-Burdock ISR Uranium project in Fall River and Custer Counties, of South Dakota to reflect current baseline conditions and project revenue estimates.

In 2012-2013, Doyl Fritz, P.E. of WWC was approved by the Department of Environment and Natural Resources (DENR) Board to update a Socioeconomic Assessment as part of Powertech's (USA) Inc., (Powertech) Large Scale Mine Permit (LSMP) application for the Dewey-Burdock Project. The assessments utilized the IMPLAN[®] software model incorporating the latest census, regional economic data, and life-of-mine planning information to evaluate the potential impacts of the Dewey-Burdock Project. This socioeconomic assessment was included in the 2013 LSMP application to the South Dakota DENR.

In 2024, WWC prepared a combined Technical Report and Environmental Report, including socioeconomic analysis, for a Nuclear Regulatory Commission (NRC) license renewal application for the project. The NRC approved the renewal and issued a 20-year License (SUA 1600) on June 30th, 2026.

Powertech requests that WWC be approved by the Board to update the Socioeconomic Assessment for the proposed mine and LSMP application. WWC has conducted socioeconomic assessments, not only for Powertech, but for a variety of energy infrastructures and development projects in the past 45 years. WWC's statement of qualifications is attached for the board's review. Thank you in advance for your consideration of this request.

Sincerely,

Jay Douthit
Vice President of Northern Projects
Powertech (USA), Inc. a subsidiary of enCore Energy

FROM: WWC Engineering
DATE: 7 August 2026
SUBJECT: WWC Engineering's Socioeconomic Qualifications

Western Water Consultants, Inc., dba WWC Engineering (WWC), is a Wyoming-based professional services company with extensive experience in the uranium industry. WWC has worked in the mining industry since our inception in 1980, and, with the resurging interest in uranium mining in the 2000s, we have grown into one of the leading consultants to the uranium industry. Our team brings extensive in-situ recovery (ISR) project expertise, regulatory experience, and decades of completing relevant socioeconomic assessments for mine permits. This includes preparing studies that follow defined regulatory standards for socioeconomic analysis under National Environmental Policy Act (NEPA), complying with U.S. Nuclear Regulatory Commission (NRC) licensing requirements, and preparing mineral resource Technical Reports under both US and Canadian jurisdictions. Additionally WWC has completed economic analyses for internal mine planning purposes.

Relevant Experience

The WWC Team has a long history preparing socioeconomic analyses and economic impact assessments. Examples of relevant projects are listed below.

Dewey-Burdock Project

In 2012-2013, WWC prepared an updated Appendix 4.0-A Socioeconomic Assessment as part of the South Dakota Large Scale Mine Permit application for the Dewey-Burdock Project. These updated assessments incorporated the latest census, regional economic data, and life-of-mine planning information to evaluate the impacts of the Dewey-Burdock Project utilizing the IMPLAN software model. This socioeconomic assessment was submitted to the South Dakota Department of Agriculture and Natural Resources (DANR).

In 2024, WWC prepared a combined Technical Report and Environmental Report including socioeconomic analysis for the NRC license renewal application for the Dewey-Burdock Project.

NEPA Projects

WWC has authored more than 30 Environmental Impact Statements, Environmental Assessments and Categorical Exclusions, primarily as a third-party contractor for the Bureau of Land Management on mineral development projects. WWC completed and authored the analysis of socioeconomic impacts for numerous NEPA documents to quantify the impacts related to coal leasing, oil and gas leasing, lease modifications, and coal exchanges.

Key Projects: Environmental Assessment for Shirley Basin Uranium In Situ Recovery Project, lead author.

Environmental Assessment Antelope Mine Federal Mining Plan Modification, lead author.

Environmental Assessment for Spring Creek Mine Federal Mining Plan Modification (TR1), lead author.

Environmental Impact Statement for the Lost Creek ISR Plan of Operation Modification, lead author.

NRC Technical and Environmental Reports

WWC has prepared or assisted with the preparation of multiple Technical and Environmental reports in support of applications to the NRC for source and byproduct materials licenses. WWC has prepared the socioeconomic impact analyses for successful NRC license applications or renewals for uranium ISR projects in Wyoming, South Dakota, New Mexico, and Nebraska. The Technical and Environmental Reports (including socioeconomic analyses) for a NRC license serve as the basis for the NRC to complete an independent NEPA analysis.

Key Projects: Crownpoint Uranium Project Environmental Report, including socioeconomic analysis. 2025

Dewey-Burdock ISR Project combined Environmental and Technical Report, including socioeconomic analysis. 2024.

Crow Butte ISR uranium mine Combined Environmental and Technical Report, including socioeconomic analysis. 2024.

Uranium Technical Reporting

WWC professionals have acted as the primary authors and Qualified Persons for numerous S-K 1300 and NI 43-101 Initial Assessments with Economics and Preliminary Economic Analyses for uranium ISR projects in Wyoming, Texas, and internationally. These reports evaluate the economics of mineral resource extraction, project development, infrastructure planning, life-of-mine planning, and impacts of taxes and royalties.

Key Projects: Technical Report on the Lost Creek ISR Uranium Property, Sweetwater County, Wyoming, USA, 2026. Preliminary Economic Analysis for NI 43-101 and Initial Assessment with Economics for S-K 1300 regulations.

Technical Report on the South Texas Integrated Uranium Projects, Texas, USA, 2025. Preliminary Economic Analysis for NI 43-101 and Initial Assessment with Economics for S-K 1300 regulations.

Technical Report on the Gas Hills Uranium Project Fremont and Natrona Counties, Wyoming, USA, 2025. Preliminary Economic Analysis for NI 43-101 and Initial Assessment with Economics for S-K 1300 regulations.

Shirley Basin ISR Uranium Project, Carbon County, Wyoming, USA, 2024. Preliminary Economic Analysis for NI 43-101 and Initial Assessment with Economics for S-K 1300 regulations.

Coal Mine Socioeconomic Analysis

WWC has completed three economic impact assessments utilizing the IMPLAN software model for coal mines in Wyoming and West Virginia. These analyses evaluated the potential impacts of coal mining and the manufacturing of goods produced from coal on the local communities, including state and local tax revenue, job creation, and local salaries.

Key Personnel

Below is a list of key personnel and a summary of their relevant experience with socioeconomic analyses.



Doyl Fritz, P.E. – Senior QA/QC Reviewer

Doyl Fritz is an accomplished engineer with over 50 years of experience in civil engineering, NEPA analysis, socioeconomic analysis, and regulatory and permitting compliance. His expertise includes acting as primary author of numerous socioeconomic analyses within NEPA documents that were prepared for federal agencies, acting as the approved socioeconomic contractor for the South Dakota DNR for an updated socioeconomic assessment for the Dewey-Burdock Project, and acting as the senior QA/QC reviewer on socioeconomic analyses utilizing the IMPLAN software model.



Ray Moores, P.E. – Senior Engineer

Ray Moores has more than two decades of experience in regulatory compliance, socioeconomic analysis utilizing the IMPLAN software model, and life-of-mine economic modeling. He has played a pivotal role in uranium ISR projects, including acting as a Qualified Person for economics in S-K 1300 and NI 43-101 reporting, engineering cost estimation, and overseeing operational evaluations for multiple ISR projects. Ray has extensive expertise in completing due diligence reviews of uranium projects, economic assessments, ISR operations, and mine permitting.



Chris McDowell, MBA, P.G. – Project Manager

Chris McDowell is a professional geologist and Qualified Person for S-K 1300 and NI 43-101 with over 11 years of experience in uranium geology and economic analysis. His expertise includes completing due diligence reviews of uranium projects, preparing socioeconomic analyses and economic impact assessments utilizing the IMPLAN software model, and preparing and confirming life-of-mine and cash flow models.

Attachments

Fritz Resume

Moores Resume

McDowell Resume

WWC NEPA Compliance Documents project abstract

BLM Socioeconomics Program, 2024, Desk Guide: Socioeconomic Aspects of Planning and NEPA.

Extracted sections from NI 43-101 Standards of Disclosure for Mineral Projects

Extracted Sections from S-K 1300 Disclosure by Registrants Engaged in Mining Operations



DOYL FRITZ, P.E.

SENIOR TECHNICAL ADVISOR

ABOUT ME

Doyle M. Fritz has over 50 years of professional experience in civil engineering, hydrologic investigations, hydraulic design, water rights, water supply and wastewater disposal studies, NEPA analysis, and surface mine permitting and regulation. Mr. Fritz has broad experience managing a variety of civil and environmental engineering projects. He co-founded WWC and helped the firm grow into one of Wyoming's largest consulting engineering firms. He is past president of American Council of Engineering Companies of Wyoming, former National Director of the American Council of Engineering Companies, and past president of the Wyoming Section of the American Society of Civil Engineers.

PROFESSIONAL EXPERIENCE

2011 - PRESENT

1980 - 2011

2001 - 2011

1978 - 1980

1976 - 1978

1973 - 1976

1970 - 1973

- Senior Technical Advisor, WWC Engineering, Sheridan, WY
- Principal, WWC Engineering, Sheridan, WY
- President, WWC Engineering, Sheridan, WY
- Principal, Hydrology Associates, Inc., Sheridan, WY
- District Engineer for Northeastern Wyoming, Wyoming Department of Environment Quality/Land Quality Division, Sheridan, WY
- Consulting Engineering, HKM Engineers, Billings, MT
- Water Resource Engineer, Wyoming State Engineer's Office, Cheyenne, WY

EDUCATION

Master of Science Civil Engineering

Arizona State University, 1969

Bachelor of Science Civil Engineering

University of Wyoming, 1968

REGISTRATIONS AND CREDENTIALS

PROFESSIONAL ENGINEER

Wyoming No. 1467
Colorado No. 11589

HONORS AND AWARDS

- Wyoming Chapter Tau Beta Pi, Wyoming Eminent Engineer, 2001
- 3-time recipient of Wyoming Mining Association Professional of the Year
- Partner in Environmental Excellence, Jacobs Ranch Mine

SPECIALIZED TRAINING

- NRCS Certified Technical Service Provider
- Partnering in Construction Loss Prevention Training

PROJECT EXPERIENCE

Conducted socioeconomic impact analyses for nuclear regulatory commission license applications for projects in Wyoming, South Dakota, and New Mexico.

Assisted in preparation of numerous Environmental Reports and Technical Reports in support of source and byproduct material license applications to the Nuclear Regulatory Commission on behalf of uranium mining clients.

Approved as a socioeconomic contractor by the South Dakota Department of Environmental and Natural Resources to modify and amend the socioeconomic impact study for the Dewey-Burdock Project in 2012.

Assisted in preparation of numerous Preliminary Economic Analysis reports meeting the requirements of National Instrument 43-101 on behalf of uranium mining clients.

Author or co-author of NEPA compliance documents, including 12 Environmental Impact Statements, 14 Environmental Assessments and over 20 Categorical Exclusions working as third-party contractor for Bureau of Land Management, Interstate Commerce Commission, and Wyoming Department of Transportation.



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RAY MOORES, P.E.

CIVIL ENGINEER/PROJECT MANAGER

ABOUT ME

Ray Moores is a civil engineer with 24 years of engineering experience, in addition to his Masters' research on sediment transport. His scholastic background in hydrology/hydraulics theory has given him an excellent basis for his work in the Civil/Water Resources Department. Mr. Moores has been involved with many projects mine permitting, socioeconomic evaluation; and NRC licensing, life of mine economic modeling, and acting as a Qualified Person for Economics under S-K 1300 and NI 43-101.

PROFESSIONAL EXPERIENCE

2002 - PRESENT

2001 - 2002

- Civil Engineer/Project Manager, WWC Engineering, Sheridan, WY
- Teaching Assistant, University of Wyoming, Laramie, WY

EDUCATION

Master of Science
Civil Engineering

University of Wyoming, 2002

Bachelor of Science
Civil Engineering

University of Wyoming, 2000

REGISTRATIONS AND CREDENTIALS

PROFESSIONAL ENGINEER

Wyoming No. 10702

Colorado No. 43036

PRESENTATIONS AND PUBLICATIONS

- Qualified Person for Temrezli ISR Uranium Project Preliminary Economic Assessment, July 2013
- Qualified Person for Technical Report of the South Texas Integrated Uranium Projects, Texas, USA February 2025

PRESENTATIONS AND PUBLICATIONS (CONT.)

- Qualified Person for Technical Report on the Gas Hills Uranium Project Fremont and Natrona Counties, Wyoming, USA February 2025
- Qualified Person for Preliminary Economic Assessment Lost Creek ISR Uranium Property Sweetwater County, Wyoming, USA March 2024 and Preliminary Economic Assessment Shirley Basin ISR Uranium Project, Carbon County, Wyoming, USA March 2024

PROJECT EXPERIENCE

Project Manager for preparation of a preliminary economic assessment (PEA) for the Temrezli ISR Uranium Project located near Sorgun, Turkey.

Evaluated socio-economic impacts of coal mine development projects and expansions as well as potential industrial development projects in Wyoming, Montana, and West Virginia utilizing the IMPLAN software.

Assisted with preparation of federal Environmental Impact Statements (EIS) and Environmental Assessments (EA) for conventional oil and gas, coal bed natural gas, and uranium mining projects in Wyoming and Colorado.

Qualified Person (QP) for NI 43-101 Preliminary Economic Assessments for the Shirley Basin ISR Uranium Project, Lost Creek ISR Uranium property, Gas Hills Uranium project and the South Texas Integrated Uranium projects.

Project Manager in charge of a multi-discipline team responsible for permitting a large conventional uranium mine near Canon City, Colorado.

Worked on numerous projects in the CBNG industry in support of energy development and water resource management through all major regulatory entities, including the Bureau of Land Management, the Wyoming Department of Environmental Quality, the Wyoming Oil and Gas Conservation Commission, the U.S. Army Corps of Engineers and the Wyoming State Engineer's Office.



CHRISTOPHER MCDOWELL, MBA, P.G.

PROJECT MANAGER

ABOUT ME

Since joining WWC in 2015, Chris has been involved in a variety of projects, including conducting mineral resource estimates, preparation of NEPA documents, economic impact assessments for mines and industrial sites, and preparation of geologic exhibits for mine permit documents and Wyoming Oil and Gas Conservation Commission (WOGCC) hearings. Chris has also prepared and is a Qualified Person for Technical Reports, Preliminary Economic Assessments, and Feasibility Studies for uranium mines under NI 43-101, S-K 1300, and JORC regulations for mining disclosure. After earning his MBA, Chris has prepared detailed economic models and market research studies for multiple clients. Chris's training and background in geology and business suits him for a wide variety of WWC projects ranging from resource estimates and economic modeling to water well permitting and installation.

PROFESSIONAL EXPERIENCE

2019 - PRESENT

2016 - 2019

2015 - 2016

2014 - 2015

- Project Manager, WWC Engineering, Sheridan, WY
- Associate Geologist, WWC Engineering, Sheridan, WY
- Geology Intern, WWC Engineering, Sheridan, WY
- Geophysics Field Technician, Wyoming Center for Environmental Hydrology and Geophysics, Laramie, WY

EDUCATION

Master of Business Administration

University of Wyoming, 2022

Bachelor of Science Geology

University of Wyoming, 2016

REGISTRATIONS AND CREDENTIALS

PROFESSIONAL GEOLOGIST

Wyoming No. 4135

Texas No. 15284

SPECIALIZED TRAINING

- SME Mine Exchange Short Course "Mineral Economics - Fundamental Concepts", 2025
- AME Roundup Short Course "Capital Markets for Geoscientists", 2024
- SME Mine Exchange Short Course, "Regulation S-K 1300, What You Need to Know", 2022
- University of Wyoming Energy

SPECIALIZED TRAINING (CONT.)

- OSHA 10 Training
- PEC Safeland USA
- Johnson Screens Groundwater and Wells Design Class
- Uranium Resource Estimation Short Course U2017

PROFESSIONAL MEMBERSHIPS

- Society for Mining, Metallurgy & Exploration, Registered Member No. 4311521
- Wyoming Geological Association
- Member of Sheridan Area Search and Rescue

PROJECT EXPERIENCE

Performed socioeconomic impact analyses for coal mines and industrial parks in Wyoming and West Virginia utilizing the IMPLAN software to determine the impacts of the project on the surrounding communities.

Performed economic modeling for regulatory compliance documents.

Prepared discounted cash flow models for multiple uranium ISR projects in support of their life of mine modeling.

Assisted in the preparation of an Environmental Impact Statement (EIS) for the Bureau of Land Management and Environmental Assessments (EA) for projects around Wyoming.

Prepared and served as a Qualified Person for multiple NI 43-101, S-K 1300 and JORC technical reports, preliminary economic assessments, and feasibility studies for ISR uranium projects.



SERVICE · QUALITY · INTEGRITY

NEPA COMPLIANCE DOCUMENTS

Client:

Various Clients

Location:

Wyoming, Montana,
Colorado, New Mexico &
Utah

Completed:

From 1992 to Present

Project Costs:

Varies

SERVICES PROVIDED

- Develop purpose and need statement
- Develop list of alternative actions
- Prepare description of existing environment
- Environmental analysis
- Mitigation plans
- Description of ir retrievable commitment of resources

THE PROJECT

Since the early 1990s, WWC has prepared numerous NEPA compliance documents, mostly as a third-party contractor to BLM preparing Environmental Impact Statements and Environmental Assessments for mineral lease applications, lease modifications, water management plans and mineral-surface exchanges. Often EPA and OSM as well as various state regulatory agencies have cooperated in the preparation of these NEPA documents. This has provided WWC with a thorough knowledge of the NEPA process, including a clear statement of purpose and need, full and logical consideration of alternatives, and objective impact analysis. We have also held term contracts with state transportation departments for the preparation of Categorical Exclusions and Environmental Assessments for various types of projects, including new construction, reconstruction, enhancements and simple surfacing and overlay projects.

We have prepared more than 40 major EISs and EAs and not one of our NEPA reports has been successfully challenged by internal agency review boards or interest groups. We currently have a core staff of professionals experienced in preparation of NEPA compliance documents. Many of the EISs we have prepared as a third-party contractor are currently available for public viewing on ePlanning and the OSMRE Initiatives website. The following is a partial list of NEPA compliance documents prepared by WWC since 2000.

NEPA Compliance Documents

2000-EIS for Horse Creek Coal Lease Application	2001-EIS for North Jacobs Ranch Coal Lease Application	2001-EIS for Horsetrap Oil & Gas (water resources)	2002-EIS for Atlantic Rim CBM Project (water resources)	2002-EA for Western Energy Coal Lease Amendment
2003-EIS for Pittsburg & Midway Land and Coal Exchange Proposal	2003- EIS for Desolation Flats Oil & Gas Project (water resources)	2003-EA for Little Monument Natural Gas Project (water resources)	2003-EA for Copper Ridge Shallow Gas Project (water resources)	2003- EIS for South Powder River Basin Coal Leases
2004 EA for Pacific Rim Shallow Gas Project (water resources) WY-BLM	2005 EA for Bowdoin Field Development (water resources) MT-BLM	2006 EIS for Maysdorf Coal Lease Application (lead) WY-BLM	2006 EA for Piceance Oil and Gas Development Project (water resources) CO-BLM	2006 EA for Spring Creek Coal Company's Coal Lease Modification (lead) MT-BLM
2006 EA for Decker Coal's Coal Lease Modifications (lead) MT-BLM	2007 EIS for Eagle Butte West Coal Lease Application (lead) WY-BLM	2008 EA for ConocoPhillips Drunkards Wash Section 34 Well Pad (water resources) UT-BLM	2008 EIS for Absaloka Mine Crow Reservation South Extension Coal Lease Approval and Proposed Mine Development (lead) MT-BLM	2009 EIS for South Gillette Area Coal Lease Applications (lead) WY-BLM
2010 EIS for Wright Area Coal Lease Applications (lead) WY-BLM	2010 EA for Spring Creek Coal Company's Lease Modification (lead) MT-BLM	2011 EA for Bull Mountain Development Plan (water resources) – Moved to an EIS CO-BLM	2012 EA for Samson Resources Co. Hornbuckle Field Development Program EA Update WY-060-EA12-266 (lead) WY-BLM	2013 EA for Samson Resources Co. Scott Field Development Project WY-060 EA13-067 (lead) WY-BLM
2013 EA for Samson Resources Co. North Tree Phase I POD WY-070-EA12-77 (lead) WY-BLM	2013 EA for Big Metal Coal Co. Exploration Drilling Program for MT-BIA and MT-BLM (lead)	2015 EA for Rawhide Mine Coal Lease Modification (lead, on hold) WY-BLM	2015 EA for Samson Resources Co. Crazy Woman Exploratory POD (lead) WY-BLM	2015 EA for Spring Creek Mine Mining Plan revisions (LBM) approval (lead) OSMRE-Denver
2015 Lost Creek ISR Plan of Operation Modification EIS (lead) WY-BLM	2016 EIS for Continental Divide-Creston Natural Gas Project (water resources) WY-BLM	2016 Cordero Rojo Mine Land Amendment EA Federal Mining Plan Modification (lead, in progress) OSMRE-Denver	2016 EA for Belle Ayr Mine Federal Mining Plan Modification (lead) OSMRE-Denver	2016 EA for EOG 2017 Crossbow Interim Drill Project (lead) OSMRE-Denver
2016 Lower Yellowstone Intake Diversion Dam Fish Passage Project EIS (lead reviewer, in progress) BOR-MT	2016 Avalanche Irrigation District EA (lead, in progress) BOR-MT	2016 EA for Dry Fork Mine Amendment 2 Tract 1 Federal Mining Plan Modification (lead) OSMRE-Denver	2017 EA for Balidor Interim Drilling Project (lead) WY-BLM	2018 EIS for the Proposed Amendment to Permits 00030 and 00030A for the Continental Mine (hydrology and noise) Montana DEQ
2018 EA for Caballo Mine Federal Mining Plan Modification (lead, in progress) OSMRE-Denver	2019 Dry Fork Mine Amendment 3 EA Federal Mining Plan Modification (lead, in progress) OSMRE-Denver	2019 EA for Spring Creek Mine Federal Mining Plan Modification (TR1) (lead, in progress) OSMRE-Denver	2019 EA for Antelope Mine Federal Mining Plan Modification (lead, in progress) OSMRE-Denver	2019 EA for Shirley Basin Uranium In-Situ Recovery Project (lead, in progress) WY-BLM

Desk Guide: Socioeconomic Aspects of Planning and NEPA

BLM Socioeconomics Program

August 2024

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1. Introduction

1.1 Purpose

The purpose of this Desk Guide is to support Bureau of Land Management (BLM) staff responsible for addressing or reviewing socioeconomic issues in the National Environmental Policy Act (NEPA) compliance process and for development, revision, and amendment of land use plans under the Federal Land Policy and Management Act (FLPMA). This Desk Guide discusses the types of information that can or should be considered in the socioeconomic sections of environmental assessments (EAs) and environmental impact statements (EISs) prepared pursuant to NEPA, provides suggestions for obtaining internal and external socioeconomic expertise, and summarizes best practices for how and when socioeconomic data and analyses should be incorporated into BLM NEPA and land use planning documents. The Desk Guide is not intended to be a checklist of essential tasks or to be a standard for demonstrating that a specific analysis is adequate under NEPA. Instead, it is understood that an appropriate level and type of analysis will be developed for each project or plan being assessed and the Desk Guide is intended to be helpful toward this end.

This Desk Guide is a resource for interdisciplinary teams, planning and environmental coordinators, socioeconomic specialists, contractors, and any other staff responsible for supporting socioeconomic elements of NEPA compliance or land use planning efforts. At the BLM, this is not limited to Socioeconomic Program staff with specialized training. Information provided here is generally consistent with the BLM's NEPA Handbook (H-1790-1, rel. 1-1710) and Land Use Planning Handbook (H-1601-1, rel. 1-1693), and represents the approach supported by the BLM's Socioeconomics Program. Where differences exist between the Land Use Planning Handbook Appendix D and this Desk Guide, the newer approach outlined in this Desk Guide supersedes the former. For example, this Desk Guide does not require stand-alone economic workshops described in Appendix D, if the same purpose can be met as part of other public engagement efforts.

The majority of this Desk Guide addresses the role of socioeconomics in the NEPA process for proposed actions in general. Additional considerations for actions specific to BLM land use planning are addressed in Section 5, Planning-Specific Considerations.

1.2 Overview of Desk Guide

Socioeconomics refers to the coordinated data, analyses, and interpretations provided by a range of social science disciplines, including anthropology, demography, economics, geography, history, political science, and sociology. Each discipline contributes methods that can help BLM personnel and the public understand the relationships between people and their environment. As a multiple use agency, sound resource management requires BLM managers to recognize and balance competing human interests regarding public lands and resources.

To support socioeconomic components of NEPA and land use planning processes, this Desk Guide includes a description of the role of socioeconomics in the NEPA process, guiding principles for considering socioeconomics, and discussion of where and how to apply socioeconomic information and methods in the NEPA process. The scope and scale of socioeconomic discussion or analysis should be commensurate with the issues identified for analysis, the proposed action, and the alternatives, including whether the BLM is evaluating the proposed action through preparation of an EA or EIS. This Desk Guide includes suggestions to help identify the appropriate scale and scope of the socioeconomic tasks.

1.3 Legal Framework

The requirement for the BLM to use socioeconomic information in the preparation of NEPA compliance documents and decisions supported by those evaluations comes directly from NEPA and the Council on Environmental Quality's (CEQ) regulations and guidance for implementing NEPA.

The NEPA states “*it is the continuing policy of the Federal Government . . . to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans*” (42 USC 4331(a)). In addition, the NEPA directs agencies to “*ensure the integrated use of the natural and social sciences . . . in planning and in decision-making*” (42 USC 4332(2)(A)). The CEQ's NEPA regulations specify that the human environment or environment means “comprehensively the natural and physical environment and the relationship of present and future generations with that environment” (40 CFR 1508.1(r); citing regulations effective July 1, 2024). Further, CEQ's regulations provide that the discussion of environmental consequences in an EIS should include, “[w]here applicable, economic and technical considerations, including the economic benefits of the proposed action.” (40 CFR 1502.16(a)(12); citing regulations effective July, 2024). While CEQ's regulations explain that “[e]conomic or social effects by themselves do not require preparation of an [EIS], . . . when the agency determines that economic or social and natural or physical environmental effects are interrelated, the [EIS] shall discuss these effects on the human environment.” (40 CFR 1502.16(b); citing regulations effective July 1, 2024). Specific to land use planning, FLPMA requires BLM to integrate physical, biological, economic, and other sciences in developing land use plans (43 USC 1712(c)).

Additional policies and laws relating to socioeconomic considerations in the NEPA process include:

- *Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations* directs each Federal agency to “identify and address . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.”
- *Subsistence resource rights*. Federal obligations to tribes regarding access to resources are based on treaty, statute, and case law. In addition, the Alaska National Interest Lands Conservation Act specifies additional requirements for ensuring rural Alaskans maintain access to Federal lands for subsistence use.
- *Executive Order 13166 Improving Access to Services for Persons with Limited English Proficiency* directs agencies to reduce barriers to full and meaningful participation in Federal programs and activities.
- *Executive Order 13985 Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* directs Federal agencies to provide underserved communities equitable access to Federal programs and policies and associated resources and benefits.
- *Executive Order 14008 Tackling the Climate Crisis at Home and Abroad* updates advisory and reporting structures for Federal actions related to environmental justice (EJ).
- *Executive Order 14096 Revitalizing Our Nation's Commitment to Environmental Justice for All* promotes a whole-of-government approach to environmental justice and supplements E.O. 12898.

2. Socioeconomic Elements in the NEPA Process

Socioeconomics' role in the NEPA process generally focuses on identifying socioeconomics-related issues, characterizing existing social, economic, and environmental justice conditions (i.e., affected environment or baseline), and analyzing the social, economic, and environmental justice effects of a proposed action and range of alternatives (i.e., environmental consequences on affected human populations). An effectively communicated baseline and effects analysis provides the public and decision-maker with a critical perspective on how BLM management decisions affect people – locally, regionally, and nationally. All issues are human issues. Economic, biological, and physical resource conditions and impacts have meaning to people. Successful consideration of socioeconomic issues in the NEPA process is more likely when a socioeconomic specialist is involved at the outset of the NEPA effort and throughout the process.

While issue identification, description of baseline conditions, and effects analyses represent socioeconomics' most direct role in the NEPA process, socioeconomic expertise can provide useful information throughout the process. Social and economic information can add value in determining strategies for public involvement and in the alternative development process. Socioeconomic staff have valuable subject matter expertise needed when responding to comments, reviewing the decision document, supporting defense of any administrative or judicial challenge to the agency action, and assuring the language used in public-facing documents is consistent and accurately reflects the socioeconomic information in the NEPA document.

Table 1 highlights the role of the socioeconomic specialist at each phase of the NEPA process as that process is described in the NEPA Handbook (1790-1, rel. 1-1710). At each step, this table describes how socioeconomic support may vary given the differences in scope and scale across EAs and EISs. Section 3, Applying Socioeconomics in the NEPA Process, describes the primary socioeconomic tasks in greater detail.

Table 1. Socioeconomics in the NEPA Process

<u>Typical for EIS</u>	<u>Typical for EA</u>
<u>Project initiation:</u> - Identify interdisciplinary team (IDT) member responsible for socioeconomics. All EISs are likely to raise socioeconomic issues, and therefore the IDT should include a BLM socioeconomic specialist. - As appropriate, communicate with state or zoned BLM socioeconomic staff and/or determine need, scope of work, and budget estimates for external socioeconomic assistance. - Identify initial socioeconomic-related issues. Almost all EISs and EAs will have them. - Consider initial public involvement strategies for socioeconomic topics. - Identify existing socioeconomic data, information needs, and data gaps that will need to be addressed to support the analyses.	
<u>Scoping:</u> Engage and participate in activities to ensure: - Known socioeconomic conditions and issues are accurately communicated. - Socioeconomic data and information are solicited and adequately captured.	<u>Scoping:</u> Engage and participate in activities to ensure: - Known socioeconomic conditions and issues are accurately communicated. - Socioeconomic data and information are adequately captured, and if needed solicited through internal scoping.
<u>Issue identification:</u> Based on internal and external scoping, identify which socioeconomic issues require further analysis, if any, and develop an analysis plan, if appropriate.	<u>Issue identification:</u> Based on internal and external scoping, identify which socioeconomic issues require further analysis, if any, and develop an analysis plan, if appropriate.
<u>Baseline:</u> EISs may require a standalone Socioeconomic Baseline Report prior to alternative development.	

<u>Alternative Development:</u> Provide input on social and economic opportunities and constraints to help formulate alternatives, as requested.	<u>Alternative Development:</u> Provide input on social and economic opportunities and constraints to help formulate alternatives, as requested.
<u>Analysis and writing:</u> - Summarize Socioeconomic Baseline Report for Affected Environment section. - Analyze the socioeconomic effects. - Review external-facing and briefing materials if socioeconomics-related language is used.	<u>Analysis and writing:</u> - Draft Affected Environment section. - Analyze the socioeconomic effects. - Review external-facing and briefing materials, if socioeconomics-related language is used.
<u>Prep of Final EIS or revised EA:</u> - When appropriate, participate in public meetings during public review of draft EIS or EA. - Respond to and address comments. Conduct additional analysis, as needed. - Review drafts of the Record of Decision (ROD) or Finding of No Significant Impact (FONSI) and Decision Record. - Provide materials for the project file. - Support defense of any administrative or judicial challenges to the agency action.	

2.1 Internal Expertise

Socioeconomics is a scarce skill at the BLM. Except for rare circumstances, BLM field offices do not have staff whose primary role is to be the subject matter expert in socioeconomics for NEPA analyses. BLM socioeconomic specialists are usually on staff in zoned positions (covering multiple states) or State Offices. The involvement of a BLM socioeconomic specialist in a NEPA analysis often depends on the scale and scope of the proposed action.

Common practice for most EAs is for the BLM field or district office staff to prepare NEPA analysis in-house. In these cases, responsibility for socioeconomics in a NEPA analysis is often a collateral duty for an interdisciplinary team (IDT) member, such as the EA project lead, local planner, or NEPA specialist. BLM staff tasked with this role should be familiar with this Desk Guide. Socioeconomics must be given careful consideration even when a socioeconomic specialist is not assigned to the project. Managers and project leads are encouraged to consult with state, zoned, or national office socioeconomic subject matter experts early in the NEPA process if there is any uncertainty related to socioeconomic requirements and needs.

All EISs for which there is a BLM IDT should include a BLM socioeconomic specialist on the IDT responsible for content development, oversight, and quality control. It is recommended that EAs with relatively complex socioeconomic issues also have a BLM socioeconomic specialist on the IDT. As shown in Table 1, input from the socioeconomic specialist begins during project initiation to ensure the project budget request includes adequate funds to address socioeconomic issues and to ensure that expectations for external assistance for socioeconomic tasks are clearly defined. Primary roles of the BLM socioeconomic specialist on the IDT may include:

- Serving as the socioeconomic technical lead, assisting in developing a comprehensive scope of work for external assistance, and providing technical oversight to the contractor on socioeconomic tasks.
- Defining and communicating specific data and information needs for conducting quantitative and qualitative socioeconomic analyses to the project lead and the IDT. Socioeconomic analyses rely, in part, on data and information collected and analyzed for BLM-managed resources and resource uses. Outputs from the other IDT resource analyses are inputs to socioeconomic analyses.

Therefore, the socioeconomic components typically cannot be completed until after the completion of analyses for resources and resource uses. The BLM socioeconomic specialist can facilitate requests and communicate the need to build time into project management schedules to ensure timely completion of socioeconomic deliverables.

- Assisting in defining the role of Cooperating Agencies with respect to socioeconomics and facilitating communication with Cooperating Agencies on relevant topics. Cooperating Agencies, especially counties and local governments, can serve a unique role in assisting the BLM in incorporating local knowledge of economic and social conditions ([BLM's "A Desk Guide to Cooperating Agency Relationships"](#)).
- Representing the BLM on socioeconomic topics at public meetings, and facilitating outreach and engagement, particularly with EJ communities.

2.2 External Assistance

With limited internal BLM socioeconomics capacity, the BLM may need external assistance to complete socioeconomic tasks, particularly for EISs. The BLM can obtain support for addressing socioeconomic issues in several ways, including through a stand-alone contract or interagency agreement, or as part of a larger contract for a NEPA analysis, if applicable. Regardless of procurement approach, the initial scope of work or Performance Work Statement should specify socioeconomic (including environmental justice) tasks, deliverables, and qualifications of key personnel. The BLM Socioeconomics Program can assist in developing these requirements and procuring specific services. A few considerations:

- *Timing and budget.* The need for external assistance for socioeconomic support, including when that support needs to be in place and the estimated budget, should be addressed during the EIS planning phase. For example, in development of an EIS that requires a Socioeconomic Baseline Report, the schedule should provide adequate time for its development. Any economic modeling will require other resources complete their output projects for each alternative before the inputs can be developed for socioeconomic modeling. This often means that the socioeconomic effect analysis will lag other resources.
- *Evaluation of Proposals.* In reviewing proposals, the BLM should select capable contractors with relevant socioeconomics expertise and experience and who employ a robust technical approach. The BLM should also consider past performance on related projects.

3. Applying Socioeconomics in the NEPA Process

This section describes the socioeconomic elements in specific components of a NEPA analysis. The primary socioeconomic tasks are identifying socioeconomics-related issues, describing baseline conditions, and analyzing effects of alternatives. Sections 3.1, 3.2, and 3.3 focus on those three tasks. Various other components of the NEPA process may occur between or span across these tasks (refer to Table 1). Section 3.4 provides information on how socioeconomics fits into those additional components of the NEPA process. The tasks identified in this document are standard parts of the NEPA process, and terms used to identify these steps have evolved with updated NEPA guidance and training. For example, this socioeconomic guidance on identifying issues or the initial scoping for writing a baseline, could be part of creating various components of an Impact Analysis Plan, including data needs, resource characteristics, or analysis area.

Except for guidance regarding environmental justice considerations, there is little guidance or policy outside of general CEQ regulations (refer to Section 1.3) that further defines the scope or analytic requirements for socioeconomics in the NEPA or land use planning processes. The BLM can define the socioeconomic methods and scope appropriate to the social context and socioeconomics-related issues

associated with the proposed action. This Desk Guide outlines requirements and best practices for doing so. This Desk Guide outlines requirements and best practices.

The following principles reflect NEPA's analytic rather than encyclopedic focus as applied to socioeconomic issues and their possible significance:

- *Connect biophysical and socioeconomic factors.* The socioeconomic analyses and supporting data, text, and figures should reflect the relationships between people and the environment. For the purposes of NEPA analyses, the social, demographic, and economic data only become meaningful when explained in the context of specific human populations and their reliance on the natural resources involved in the proposed action. The anticipated impacts of the proposed action should determine the scope of the socioeconomic data and information discussed in the baseline assessment. If the BLM develops a baseline assessment broader in scope, the BLM should clarify that it intends this broader assessment to present context for the proposed action and explain why it is providing such context. For example, an indicator like total population may not change under any alternative but may provide context needed to understand other socioeconomic conditions or effects.
- *Emphasize cause-effect relationships.* Decision-makers and the public can better understand connections between biophysical and socioeconomic factors if the BLM explicitly identifies and rigorously evaluates the relationships between management actions and the impacts people perceive from them. This relationship might be readily apparent (e.g., mineral leasing can generate revenue and provide local employment opportunities) or BLM's analysis may need to highlight the several intermediate causal relationships often involved in these connections. For example, recreation activity in a particular area may degrade vegetation and stream health, which then could threaten an endangered species and local water quality. These biophysical changes could increase drinking water treatment costs and threaten the passive use values associated with endangered species (refer to Appendix A for description of Passive Use value).
- *Ensure assessments and analyses are grounded in current science.* As feasible, utilize, or specify the use of, current and peer-reviewed socioeconomic literature to guide analyses, generate hypotheses, and draw conclusions. The BLM should not base conclusions solely on individual opinions or anecdotal evidence, but should rely on high-quality information, including Indigenous Knowledge. Refer to [BLM Information Quality Act Guidelines, April 2, 2018](#), for more information on what constitutes literature that meets BLM's data quality standards. Furthermore, ensure proper citation of all data and conclusions relied upon, and that the project file, relative to socioeconomic, is complete.
- *Allow for a flexible scope.* The scope of the socioeconomic analysis and selection of methods should be appropriate for the social contexts, economic conditions, geographic scale, and issues identified as relevant to the proposed action. There is no standard scope of work for a socioeconomic assessment or analysis available for routine use in NEPA analyses, nor is there a standard scope of analysis as proposed actions can vary widely.
- *Use effective visual communication and plain language.* The socioeconomic baseline and effects analysis often contain substantial amounts of qualitative and quantitative information. Use figures, tables, graphics, and maps strategically to tell a relevant, concise, and compelling story, grounded in science. Creative use of these techniques can improve the readability and clarity of the document and can reduce the length of the written narrative within the document.

- *Distinguish between values and socioeconomic data.* In common language and across scientific disciplines, the term “value” can have several different meanings.¹ In different contexts, value might refer to a deeply held belief, the importance of something to an individual, or the monetary cost of something. For BLM socioeconomic analysis and within the context of this document, the term “values” refers to all the various benefits people receive that may be affected by public lands management. These benefits depend on the preferences of individuals, the current resource characteristics, and in part, BLM management actions and decisions. Beyond values, there is a wide range of socioeconomic data that are typically used to describe social and economic conditions or trends.

Different groups or individuals may perceive differing values from the same resource or resource use, and even the same management action or decision. Types of values include use and non-use value, and market and nonmarket value.² For instance, mine developers would perceive a different value to a proposed mineral development in an area commonly used for primitive camping than that perceived by individuals and groups who prefer the primitive setting.

More generally, socioeconomic data might include qualitative and/or quantitative information about demographics; social organization and institutions; attitudes and beliefs; economic activity; employment and income; subsistence and nonmarket values; and public finance and government services. In addition to describing current conditions and trends, the BLM can sometimes use socioeconomic data to describe and possibly measure the values individuals, communities, and groups receive from BLM-managed lands.

Values and socioeconomic data are both relevant to NEPA analyses; however, not all data directly measure values, even if the data are monetized. The extent to which BLM addresses socioeconomic data and values depends on the scope, context, and needs of the proposed project or land use plan. For example, values and socioeconomic data vary by space (e.g., across geographic regions), time (e.g., short-term versus long-term), and groups potentially affected (e.g., communities of place or communities of interest). If this variation is relevant to the issues identified and supported by data, the BLM should explicitly consider this variation in the socioeconomic analysis.

Appendix A lists values that may be affected by public lands management.

3.1 Identifying Socioeconomics-related Issues

All BLM actions will, to some extent, affect people. Socioeconomics is fundamentally concerned with people and how people might be affected by a proposed action – directly or indirectly. Therefore, BLM

¹ Refer to for example Freeman, A. Myrick III, (2003) *The Measurement of Environmental and Resource Values*, Jones, Natalie .A. et al (2016), “The study of human values in understanding and managing social-ecological systems,” *Ecology and Society* 21(1), and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES): Preliminary guide regarding diverse conceptualization of multiple values of nature and its benefits, including biodiversity and ecosystem functions and services (Dec. 7, 2015 version).

² In economics, total value is often disaggregated according to how the individual interacts with the resource (use/non-use) or how the value is conveyed or measured (market/nonmarket). Use values stem from the use of a resource either directly (e.g., drinking water) or indirectly (e.g., a kayaker on a lake). Non-use values are all other values, and are often attributed to existence value, bequest value, or the value of delaying use until the future. Related but distinct, the terms market and nonmarket value refer to the way in which the value might be conveyed or measured. Market values are those that accrue through regular market activity (e.g., buying market commodities). Nonmarket values are benefits received outside economic markets (e.g., values for clean air and scenic views).

proposed actions always implicate socioeconomics-related issues that should be considered, to some extent, for further analysis in all EAs and EISs. The BLM NEPA Handbook provides criteria and guidance for how BLM will determine what issues require further analysis.

The BLM should initially identify socioeconomics-related issues during interdisciplinary internal scoping and may then modify and expand these issues as warranted based on information gathered from external scoping. An effective approach for exploring potential socioeconomics-related issues begins by considering and identifying the different groups of people that might be affected by an action, including:

- Communities/Neighbors
- Groups with common interests
- Recreationists/Visitors
- Commercial Resource Users and Employees
- Traditional/Subsistence Users
- Tribes
- Right-of-Way Holders (& Service Populations)
- Public Service Users and Providers

For potentially affected groups, explore how each group might be affected. It can be helpful to use questions to identify potential issues or effects, particularly for projects evaluated in an EA whose preparation is not likely to involve a socioeconomic specialist on the IDT. Below are a few examples:

- For residents: How would the action affect community residents' physical or mental health (e.g., changes in air or water quality)? How would the action affect the local employment opportunities or the tax base? How would the action affect the character or quality of life?
- For visitors: How would the action affect visitor experience, satisfaction, or the quality of a visit (e.g., access, noise levels, crowding, pollution)?
- For commercial users: How would the action affect the degree to which a resource can be utilized?

If the IDT determines that none or only some of the identified socioeconomics-related issues require further analysis, the BLM must clearly document the rationale for this determination in the project record and/or the EA or EIS. (Refer to National Environmental Policy Act Handbook (H-1790-1, rel. 1-1710) Section 6.4.2, "Issues Not Analyzed in Detail")

3.2 Socioeconomic Baseline Assessment / Affected Environment

A socioeconomic baseline assessment documents existing social, economic, and environmental justice conditions at the local, regional, and (when appropriate) national scales most likely to be affected by the proposed action and alternatives. The assessment also describes the socioeconomic context of the plan or project area. The principles outlined above can guide how the BLM approaches these broad topics. The depth of the baseline assessment should be appropriate for the specific proposed action and alternatives, and address issues determined necessary for analysis. That is, a baseline assessment need only contain description of the existing social and economic conditions necessary to understand how the proposed action will affect people. The descriptions of the Affected Environment for an EA will likely be substantially shorter and qualitative, as compared to that prepared for an EIS, particularly if a standalone baseline report is developed for the EIS. Depending on project scope, the affected environment or baseline assessment may:

- Review the existing literature on the history, economy, and social system(s) of the study area that provide context to the decision or are relevant to what will be analyzed.
- Identify and characterize the demographics, social structures, and/or ways of life of communities and groups the proposed action would affect.
- Identify and characterize the values these groups and communities perceive that specifically relate to the biophysical resources and resource uses potentially affected by the proposed action.
- Characterize the relevant aspects of the economy and fiscal conditions of communities within the study area that the proposed action could potentially affect and describe how specific activities on BLM-managed lands contribute to local economic conditions.

The socioeconomic baseline assessment can draw on many sources of information, including published data sources on population, income, and occupation; oral histories, surveys, interviews, and public scoping comments; local newspapers and other media accounts; local government plans, missions, actions, and value statements; indigenous knowledge; and other sources as appropriate. The baseline assessment may capture social differences not readily apparent in the published data. If these differences are relevant to the effects of the proposed action, and there is sufficient supporting evidence (not simply speculation), the baseline assessment may describe these differences. For example: the values and presence of longtime residents such as ranchers and more transient oil and gas workers; historically Latino population centers and more recent non-Latino retiree communities; and the types and general numbers of different groups of short-term visitors to the area. Again, the goal is not to identify all socioeconomic nuances, but rather to describe the conditions that the proposed action or alternatives would affect, to the extent supported by high-quality information.

When the identified socioeconomic-related issues are extensive and complex (particularly for proposed actions evaluated in EISs), the baseline assessment might provide a narrative description of the history of a place as it relates to the current management of public lands. Where feasible, the narrative may include descriptions of specific past events that can illuminate present-day concerns and interests. For example, if the decision involves the scope of future oil and gas development, it would be useful to describe how local communities responded to a previous boom-and-bust cycle. A useful socioeconomic baseline assessment links people's current interests and values to environmental conditions and constraints, their collective history, and their ways of life.

Socioeconomics-related issues that arise for proposed actions evaluated in EAs are often relatively simple. Therefore, the socioeconomic baseline data and information needed to identify and describe the relevant characteristics of the people and communities that the proposed action could affect does not require the level of detail and context needed when issues are more complex. For example, descriptions of past events and historical trends, comprehensive descriptions of different stakeholder groups, and detailed quantitative economic and fiscal data are typically unnecessary.

Development of all socioeconomic baselines should consider opportunities for incorporation by reference as described in the NEPA Handbook.

3.2.1. Geographic Scope

Due to the nature of social and economic concerns and information, the geographic scope for socioeconomic (often referred to as the "socioeconomic study area") may differ from the geographic scope for other resource analyses. The extent of the socioeconomic study area is typically defined by the boundaries of counties intersecting BLM-managed lands potentially affected by the proposed action, and within which, socioeconomic conditions may be most directly affected by BLM decisions. The study area may also include additional counties that do not overlap BLM-managed lands potentially affected by the

action but are economically or socially linked, such as those containing the nearest large town or city where workers might reside, or where products sourced from public lands might be marketed. Certain socioeconomic topics may warrant discussion at a larger or smaller scale than the socioeconomic study area. For example, some values associated with the proposed action can accrue to individuals who do not reside in or visit the area. Because the effects analysis will consider these values, the baseline assessment should identify them. Depending on the project, it can be efficient to define geographic subgroups of communities that will be affected similarly by the proposed action. These subgroups may not be present in other resource analyses.

3.2.2 Products

The depth and complexity of the socioeconomic baseline assessment varies depending on the scope and scale of the issues raised by the proposed action. The recommended socioeconomic baseline products reflect this range.

EAs requiring brief and limited socioeconomic baseline data and information can either integrate relevant socioeconomic information in other baseline sections or include a dedicated socioeconomic baseline section.

EAs with relatively complex socioeconomics-related issues may need a dedicated socioeconomic baseline section.

For EISs, recommended products associated with the socioeconomic baseline assessment include:

- A stand-alone comprehensive Preliminary Socioeconomic Baseline Report to be completed early in the process and, if possible, prior to public scoping. It can be helpful to make this report available for Cooperating Agency and public review.
- A Socioeconomic Baseline Report to be completed that incorporates any feedback from the public review, any new information received, and any additional issues identified during public scoping.
- A summary baseline assessment for inclusion in the Affected Environment section of the draft EIS. The summary should focus on those socioeconomic conditions and trends that are most relevant to identified socioeconomics-related issues associated with proposed BLM management decisions under review.

3.3 Socioeconomic Effects Analysis / Environmental Consequences

As described above, one of the primary socioeconomic tasks is analyzing the socioeconomic effects of actions. Typically, the effects analysis occurs after the BLM documents the baseline conditions and identifies the alternatives. The analysis of likely environmental consequences characterizes the effects of the proposed action and alternatives on existing conditions and trends (as those conditions are documented in the socioeconomic baseline assessment).

Effects analyses describe the social and economic effects - both positive and adverse - of a proposed action and its alternatives on the communities and groups in the socioeconomic study area, and among other relevant populations (for example, recreational users who live outside the study area). The analysis should link alternatives to the corresponding effect on the values people receive from public lands. It should provide a coherent description of the relative effects of each alternative on the social and economic conditions in the analysis area. Finally, it should present and summarize the results of the evaluation

clearly and concisely to assist both managers and the public to understand the tradeoffs inherent in the alternative approaches to action.

This section describes three key steps of the socioeconomic effects analysis. The implementation of each step depends on the overall scope and scale of the proposed action evaluated in the EIS or EA. For EISs, the socioeconomic effects analysis is more likely to include both qualitative and quantitative methods, discuss multiple (perhaps conflicting) values, and generally require increased rigor and documentation. For EAs, the discussion should reflect the spirit of this three-step process, though the actual analysis is more likely to involve fewer values and less complex methods.

If it is determined that evaluation of a proposed action requires a Health Impact Analysis (HIA) to be conducted, project management must evaluate who is qualified to prepare it. BLM socioeconomic specialists are typically not asked to conduct these analyses, nor are they qualified to do so, so it should not be assumed that an HIA will be included in the socioeconomic analysis. The same is true of impacts to public health and safety. If a proposed action may affect health and safety, there should be a specific discussion of how the analysis will be provided, and by whom, rather than assuming it will be included in socioeconomic analyses.

3.3.1 Steps in the Socioeconomic Effects Analysis Process

There are three main steps in the socioeconomic effects analysis process. It may be necessary to repeat or return to previous steps as the process proceeds.

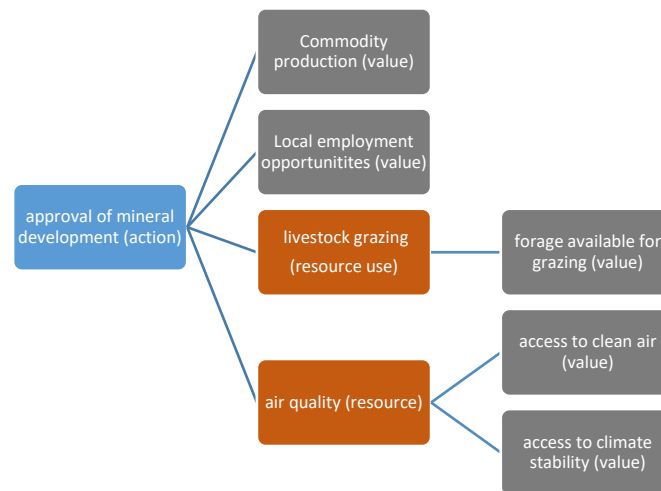
Step 1: Identify values likely to be affected by alternatives

This first step of the effect analysis is to identify the values that the BLM will analyze based on the socioeconomics-related issues. This step requires connecting issues and alternatives to specific values. The socioeconomic baseline assessment will provide an initial set of values and identify the populations that may hold these values. Refer to Appendix A for value categories. Based on the issues identified for the specific project or plan, the analyst can narrow this list to include only those values and populations most relevant for the given analysis by considering those with the potential for significant impacts or necessary to make an informed decision between alternatives.

The analyst should review the proposed action and alternatives and connect each alternative to potential changes in values. Sometimes, this process can identify connections among multiple issues. For example, two or more separate issues might arise from a single proposed action. Similarly, multiple actions may affect the same value (and population), resulting in changes to its vulnerability or resilience.

This step will often require the socioeconomic analyst to work with the IDT and leverage information from other parts of the NEPA document. Sometimes the connection between action and value will be direct: a decision to allow mineral development (action) will directly affect commodity production (value) and provide local employment opportunities (value). Other times, several intermediate factors may mediate the connection. A decision to permit mineral development (action) may affect lands available for livestock grazing (resource use) and air quality (resource), which may then affect forage available for livestock (value) and access to clean air and need for climate stability (values), respectively.

Figure 1. Example cause-effect diagram.



In explicitly identifying these relationships, the socioeconomic analysis will help connect the various biophysical impacts to each other and to socioeconomic consequences. In many cases, these connections or the intermediate changes will be identified as part of the effect analyses developed for resources and resource uses.

Step 2: Analyze social and economic effects

Next, the BLM will determine how to analyze the effects and use one or more methods to evaluate these effects. There is no single, constant, approach to analyzing specific social and economic effects. Each proposed action would take place in a unique social, economic, and cultural context, which requires the BLM to select analytical methods that best suit each situation. Not all methods used are designed solely to describe effects on values; some consider impacts according to other socioeconomic measures. For example, a regional economic impact analysis can describe the effects of alternatives on economic activity, as measured by jobs or economic output. Such an analysis can provide useful and often detailed information on potential changes to socioeconomic conditions and can ultimately inform potential changes to certain values (refer to Step 3).

Specific methods that are often appropriate for analyzing social and economic impacts include:

- *Analysis of demographic data and trends.* The compilation and analysis of past and current population characteristics, such as age, education, ethnicity, gender, and housing status. Analysts often combine this data with economic data such as personal income to identify key characteristics and trends in regions and communities.
- *Collaborative scenario development.* A technique that provides the opportunity to look at different future paths and outcomes to highlight the tradeoffs, risks, and opportunities that support development of appropriate policies or actions.
- *Fiscal analysis.* An evaluation of local, state, and/or national budgets – revenue sources and expenditures and potential effects on budgets.
- *Nonmarket valuation.* A collection of methods that estimate the value of goods and services that are not exchanged in a formal market.
- *Regional economic impact analysis.* Used to estimate changes in economic activity in terms of economic output, labor income, employment, and value added within a specified geographic area.

- *Social values mapping.* A technique that connects people's activities and experiences to specific places, the output of which may be a spatially organized display of social attachments for a specified area. Typically involving participatory techniques, social values mapping can document place-linked perceptions, uses, and attachments.
- *Social network analysis.* This technique identifies relationships between people and can be most useful to prepare for socioeconomic outreach and analysis. During scoping, it can help the analyst identify stakeholder groups and individuals and their relationships, identify potential issues, and explore the relative importance of the issues to various stakeholders. BLM can use the results to inform and frame the effects analysis.
- *Surveys and interviews.* These are techniques for eliciting information from individuals. Surveys emphasize the systematic collection of information, using a consistent set of questions and a formal sampling strategy. This allows statistical analysis of the data with known confidence intervals. Interviews are closer to guided conversations, allowing greater flexibility in questioning, greater freedom in responses, and potentially far greater depth and complexity of information. Refer to section B.1 for information on complying with the Paperwork Reduction Act of 1995 (Public Law 10413).

When selecting the best approach for analyzing social and economic effects of a proposed action, the socioeconomic lead should work closely with the project lead. Together, they can consider the following to guide the selection:

- *BLM policy.* There may be specific BLM policy addressing certain issues or analytical methods, such as estimating the impacts of grazing on local communities or mineral extraction on climate. The applicable policy may change over time. BLM socioeconomic specialists can provide information on additional relevant policy.
- *Public input.* BLM should consider the issues identified and information gathered during public involvement activities when identifying the specific methods and appropriate level of rigor.
- *Scale and level of effort.* The scale of analysis and level of effort should be commensurate with the consequences associated with the resource issue. In other words, focus data collection and analysis on those issues and sectors that are important for the agency's decision-making or the public, as identified through scoping and other formal and informal forms of public involvement. Often, a qualitative analysis is sufficient for a proposed action evaluated in an EA, while some quantitative analyses may be preferred for a proposed action evaluated in an EIS.
- *Data availability.* Social and economic analyses depend, in part, on the results of the effects analyses associated with resources and resource uses. Furthermore, quantitative estimates of socioeconomic effects rely on quantification of the more granular effects on a specific resource or resource use. For example, quantitative estimates of the economic impacts from recreation activity across alternatives is only possible if the recreation specialist estimates changes in visits by alternative. Quantification of some socioeconomic effects may not be possible without primary (new) data collection. Refer to Appendix B for data considerations.
- *Consideration of all relevant resources and resource uses.* The socioeconomic analysis should consider the full range of potential social and economic effects, not just those associated with production (market transactions) from resource uses. From an economic perspective, the analysis should consider both market and nonmarket values.

Step 3: Assess consequences on values resulting from a change in environmental conditions

The third step is to connect the social and economic effects identified in Step 2, to the consequences on the values identified in Step 1. This step may also use results from the effects analyses of other resources and resource uses if not already captured in the social and economic analyses conducted in Step 2. This

approach creates a flexible framework that allows the integration of different socioeconomic methods and data into a common concept – values. The result is a comprehensive and integrated assessment for communicating the primary merits and drawbacks of each alternative relative to the no action or proposed action alternative.

During this step, it is important to review the list of values previously identified and revise if necessary. The analyst may also choose to refine the connections between the alternatives and changes in values. Using the results of the individual analyses described above, and the assessment of the links between alternatives and values, the analyst should describe the anticipated effect of each alternative on the values considered. The consequences may be described qualitatively, quantitatively, or both, depending on data and method availability and the specifics of the project. However, it is important to recall that values are a measure of the benefits people perceive from their environment and may not be directly measurable solely by using typical environmental, social, or economic indicators. Consider the following examples:

- “Jobs supported” (employment) from a regional impact analysis is not a direct measure of the value people receive from being employed (local employment opportunities). For example, different jobs provide different incomes and the type of work is valued differently by various groups.
- “Miles of trail” is not a direct measure of the value provided by recreation opportunities for hiking or off highway vehicle use. For example, if the BLM reduces the number of miles of trails, it is possible that recreation users would make greater use of the remaining trails. If those trails were not at capacity and have similar characteristics as the closed trails, this might have little to no effect on the overall benefits received related to recreation. This example also highlights how the socioeconomic analysis relies on information from other resource specialists.
- Population count of desert tortoises is not a direct measure of the value associated with desert tortoises. If research indicates that much of the value associated with desert tortoises is attributable to existence value (a passive use value), modest population changes may not significantly affect this value.

While individual indicators are not direct measures of value, changes in indicators, combined with an understanding of the socioeconomic and environmental context within which these changes occur, can provide information on the likely effect of the proposed action and alternatives on values. In addition, there are methods for direct estimation of values in monetary or other quantitative terms. These methods may be useful in some cases but are not required for this step of the analysis. A qualitative description of the consequences on value resulting from the proposed action or alternatives is sufficient for most EAs and EISs, even when quantitative analyses are used or cited to assess certain indicators (e.g., an economic contribution analysis may estimate a change in the number of jobs, which is an important indicator but not value. This quantitative measure may inform a qualitative assessment of the effect on economic vitality).

As with the specific analyses described above, the BLM should tailor the level of effort and detail needed to describe the consequences on value to the specifics of the project. When determining the appropriate level of effort, the analyst should keep in mind the overall purpose of this assessment, which is to:

- Understand the effects of the proposed action and alternatives on the multiple values that people receive from public lands.
- Help the decision-maker understand and integrate the information on individual resources provided by individual BLM programs.
- Offer a more complete and systematic approach to analyzing a range of socioeconomic impacts of the proposed action and alternatives.

3.3.2 Products

The expected products will vary by project and should be consistent with the scope, scale, and reporting of other resource analyses evaluated for a proposed action. For EISs, recommended socioeconomic products include the following:

1. Prior to conducting the analysis, an initial description of the proposed analytical approach and data needs.
2. A description of methodology and results of any specific socioeconomic analyses.
3. A narrative evaluation of how the proposed action and alternatives will affect each value.
4. A summary table describing the consequences of the alternatives on values.
5. A summary narrative that qualitatively describes any significant consequences for values related to the issues arising from the proposed action or alternatives.
6. (Where needed) a technical report or technical appendix summarizing methods, data, and results in more detail than that provided in the socioeconomic section of the NEPA document.

For relatively simple EAs, the BLM should consider the principles described in this section but may draft the section describing the socioeconomic effects as a summary of the consequences the proposed action and alternatives may have for values. Alternatively, the BLM may incorporate the description of socioeconomic effects into the analysis of another resource or resource use, rather than as a stand-alone socioeconomic section.

3.4 Additional Socioeconomic Tasks and Considerations

As emphasized above, the primary role of socioeconomics in the NEPA process is to identify socioeconomics-related issues; characterize existing social, economic, and environmental justice conditions; and analyze the social, economic, and environmental justice effects of the proposed action and alternatives. Socioeconomic expertise can also be useful in supporting other tasks of the NEPA process.

3.4.1 Socioeconomics' Contribution to Alternatives Development

Since the BLM does not manage socioeconomic conditions, crafting alternatives to address specific desired social and/or economic outcomes can be difficult and can quickly drift outside of BLM's decision space. Sometimes, alternatives do contain actions that reflect specific social or economic goals, such as actions that "support local communities." The socioeconomic specialists can support alternative development by providing an initial assessment of how components of an alternative may affect social and economic characteristics. This information can be useful to the IDT, proponent/applicant, and/or Cooperating Agencies.

When eliminating an alternative from further analysis, economic infeasibility can be one justification (NEPA Handbook section 6.6.3). This issue comes up most frequently for externally generated actions. The determination of the economic or financial feasibility of a project is a complex exercise. It requires consideration of estimated project costs (including tax burdens) and projected revenues as well as risk, time/schedule, and desired return on the investment. If the BLM believes a determination would inform the NEPA process, or if a proponent or applicant requests that BLM pursue such an analysis, it is recommended that a third-party contractor with relevant expertise and experience conduct the analysis. Furthermore, the proponent or applicant must commit to providing the data needed for such an analysis.

3.4.2 Response to Comments

A socioeconomic specialist should be involved in reviewing, developing responses for, and revising socioeconomic sections in response to internal and external comments. Some considerations during this process include:

- Comments classified as “socioeconomics” often relate to resources or resource use. For example, a comment that the BLM did not quantify specific socioeconomic effects may reflect the absence of quantified effects associated with the relevant resource or resource uses. These types of comments require IDT coordination, and the socioeconomic specialist will need to be able to coordinate with other resource specialists in developing responses.
- Conversely, comments classified as pertaining to other resources often reflect socioeconomic concerns. For example, the BLM typically classifies comments about consideration of the social cost of GHGs or values related to threatened and endangered species as “air quality” or “wildlife” concerns. Team members assigned to respond to these comments should consult with the socioeconomic specialist when there is overlap.
- The BLM may adjust or revise baseline information, alternatives, and effects analyses for resources and resource uses to respond to public comments. These changes may affect the data and information used for the socioeconomic baseline and effects analysis. The IDT should communicate any relevant changes to the socioeconomic specialist.
- Comments may indicate that socioeconomic data are not current. It is appropriate to review relevant and more current socioeconomic data and information and evaluate whether incorporation of this data would substantively change the results and conclusions in the socioeconomic effects discussion. Regardless of whether incorporation of the data substantively changes the results the review should be documented.
- Socioeconomics should be involved in the development or revision of a preferred alternative (or proposed plan in the case of BLM land use planning initiatives) – with similar involvement in alternatives development. As with the development of the effects analysis for the draft EIS or the EA, IDT coordination on data and information requirements for the socioeconomic analysis is necessary to ensure adequate time for any revision of the socioeconomic and EJ effects analysis that might be warranted based on internal review or public comments received.
- A socioeconomic specialist is unlikely to be trained in technical aspects of safety and health issues and someone with appropriate training should be consulted to assist with addressing these types of comments.

3.4.3 Public Involvement and Socioeconomics

Public involvement is a central component of the NEPA process and land use planning. Public involvement can provide important information for the socioeconomic baseline assessment and can help shape the socioeconomic effects analysis. The role of socioeconomics in public involvement includes:

- Improving the BLM’s and the public’s understanding of baseline socioeconomic conditions, including values.
- Improving the public’s understanding of how the BLM analyzes socioeconomic effects.
- Providing recommendations for how the BLM can more actively engage minority and low-income populations (Environmental Justice) and other underrepresented populations early in the design of the public involvement outreach process, including data for where these populations may live and work.
- Providing social science expertise to increase the effectiveness of public involvement activities.

Specific considerations for integrating socioeconomics into the public involvement process include the following.

Pre-scoping. Public engagement before formal initiation of scoping (as in the publication of a Notice of Intent to prepare an EIS or to initiate a planning process) can help the BLM learn about people's values and opinions about an area. Inclusion of socioeconomic issues in situation or management assessments can often help the BLM identify social and economic trends, understand how the community depends on BLM resources, and how current management is impacting socioeconomic issues. Given the relevance of socioeconomic issues, socioeconomics specialists can actively engage and participate in these activities with the objectives of:

- Providing IDT members and managers with information about the range of ethnic, cultural, social, and economic variation in specific areas to support design of outreach methods to attain the broadest range of stakeholder involvement possible.
- Soliciting and evaluating new or supplemental socioeconomic data from the public that the BLM may use to support the development of the socioeconomic baseline assessment.
- Using information received from the members of the public to inform the characterization of values, perspectives, and interests related to BLM-managed resources.
- Providing early and accessible steps to engage minority and low-income populations (Environmental Justice) and other underrepresented populations in an appropriate, meaningful, and systematic way.
- The BLM will provide translation services as needed in accordance with Executive Order (EO) 13166 Improving Access to Services for Persons with Limited English Proficiency.³

External scoping. Socioeconomic specialists should participate in external scoping with the objectives of:

- Providing IDT members and managers with information about the range of ethnic, cultural, social, and economic variation in specific areas to support design of outreach methods to attain the broadest range of stakeholder involvement possible.
- Communicating the BLM's current understanding of baseline socioeconomic conditions (in the case of an EIS, this understanding may already be documented in the Preliminary Socioeconomic Baseline Report).
- Communicating and requesting feedback on socioeconomics-related issues identified during internal scoping and soliciting suggestions for additional issues for consideration.
- Describing how the BLM understands the values the public receive from resources and resource uses and obtaining and integrating new information about such values.

Socioeconomics-specific public involvement. BLM should integrate socioeconomics-related public engagement into the larger public involvement process. However, the BLM may need additional public involvement activities focused specifically on socioeconomic topics, if the BLM cannot achieve the analytic objectives outlined above through the public involvement strategy developed for the NEPA process. For proposed actions to be evaluated in an EIS, the project lead and BLM socioeconomic specialist should identify this need as early as possible in the process. Economic workshops, public meetings designed to reach specific ethnic or cultural groups, and other more specialized forms of public involvement should be included in the scoping process as needed. Providing translation at public

³ EO 13166 Improving Access to Services for Persons with Limited English Proficiency: published in 65 FR 50123 August 11, 2000.

meetings or of key documents can increase engagement of communities with limited proficiency in English.

3.4.4 Mitigation and Monitoring

Mitigation includes specific means, measures, or practices that would reduce or eliminate adverse effects of the proposed action or alternatives. The CEQ has defined mitigation to include (40 CFR 1508.1(y); citing regulations effective July 1, 2024):

- Avoiding the adverse effect altogether by not taking a certain action or parts of an action,
- Minimizing the adverse effect by limiting the degree or magnitude of the action and its implementation,
- Rectifying the adverse effect by repairing, rehabilitating, or restoring the affected environment,
- Reducing or eliminating the adverse effect over time by preservation and maintenance operations during the life of the action, and
- Compensating for the adverse effect by replacing or providing substitute resources or environments.

Socioeconomic impacts are usually indirect and largely fall on communities of place, communities of interest, and local government institutions, generally located off BLM-managed lands.

Monitoring socioeconomic conditions and trends can be a useful tool during implementation of an action. For example, a socioeconomic monitoring plan would outline an approach and delegate responsibility for periodically (for example, quarterly or annual) updating of observed and anticipated social and economic changes resulting from an implementation action. This information could inform local and state officials, residents, and other interested parties, and assist in local planning efforts. The successful implementation of a socioeconomic monitoring plan would require a clear and agreed upon structure, identification of sources of data, delegation of responsibility, and potentially a funding source.

3.4.5 Decision Documents

For projects with identified socioeconomics-related issues, or where the focus of certain stakeholder groups is on social and economic consequences, the BLM socioeconomic specialist should review drafts of the ROD or FONSI and Decision Record. It is particularly important that the ROD or FONSI and Decision Record correctly portray, using the appropriate language, socioeconomics-related issues, rationale, and potential effects.

3.4.6 Project File

Contracts and agreements for socioeconomic support must include material for the project file as a deliverable with expectations clearly defined in the scope of work. Some considerations include: all references (literature, data, etc.) must be provided to the BLM in electronic format, the project file should include records of all correspondence (emails, phone logs, meeting notes, etc.) relevant to understanding how the baseline and effects analysis were developed, and the project file should be delivered to the BLM in a mutually agreed upon format.

4. Environmental Justice

Considering environmental justice is an integral part of the NEPA process and must be considered for all plans and projects. Socioeconomic considerations and analyses are a necessary step in any consideration of environmental justice. For specific information on requirements, authorities and when and how to conduct EJ analyses, refer to the BLM Environmental Justice Implementation IM (2022-059) and attachment (Addressing Environmental Justice in NEPA Documents) or the most recent BLM guidance.

5. Land Use Planning-Specific Considerations

Land use planning efforts, including Resource Management Plan (RMP) development, revision, and amendment, also require NEPA compliance and approval of RMPs, revisions or amendments are typically supported by an EIS (for RMP development, revision, or complex amendments) or an EA (for RMP amendments). However, the BLM planning process includes steps and concepts that are not NEPA-specific (refer to the Land Use Planning Handbook for more details). Some aspects of the planning process that could require additional input from socioeconomics include:

- *Preparation Plan.* Offices are required to create a preparation plan (or prep plan) for RMPs. The BLM recommends, but does not require, prep plans for non-planning EISs. A prep plan contains key information such as the need for the plan, planning criteria, schedule, budget, and other relevant information. IDT input is advised. Socioeconomic input into this plan is critical, especially as related to budget needs, analytical needs, recordkeeping, external assistance, and public participation.
- *Planning Criteria and Analysis of the Management Situation (AMS).* The Planning Criteria and the AMS are recommended for concurrent development early in planning. The AMS would serve as the baseline for socioeconomics and therefore should include a Preliminary Socioeconomic Baseline Report. The Planning Criteria are intended to “describe the analytical framework the BLM will use to analyze issues” such as identifying analytical questions, relevant assumptions and methods, and data. Socioeconomics-related documentation in the Planning Criteria should follow and be consistent with the steps described in Section 3.3.1 and provide a foundation for the proposed socioeconomic effects analysis. The public’s review of the Planning Criteria will provide an opportunity to refine data needs and recommended approaches.

Appendix A. Examples of Values

This Desk Guide discusses values and socioeconomic data throughout. A list of values to consider is below. A proposed action may implicate several different values or kinds of values. The effect of a proposed action on values may vary across groups, geography, and time. In addition, the evaluation of these values may range in specificity, depending on the nature and context of the proposed action. For example, “access to products” or “passive use of ecosystems” might be sufficiently detailed for one project, but another might require separately evaluating values related to specific categories of products or specific ecosystem services. Where feasible and useful, analysts are encouraged to begin with these terms for various value concepts. This will increase consistency across projects.

Socioeconomic values that may be affected by public lands management:

- **Economic Vitality:** Value for the opportunity of income-generating activities on or near BLM-managed lands. This can include contributions to the overall economy, individual livelihoods, or individual industries. This can relate to the relative importance of industries

to the regional economy, and the ability of industries and economies to avoid or recover from short and long-term disruptions.

- **Access to Products:** Value for the opportunity to consume, use, possess, or purchase products extracted or produced on BLM lands, including meat, plants, minerals, etc. Effects could include changes in access to or cost of such products.
- **Education/Knowledge:** Value for the opportunity for learning, including scientific research opportunities, education and interpretation, and the preservation of cultural or historical knowledge.
- **Public Services:** Value for the quality and quantity of public services (education, transportation network, police & fire, parks & rec, social services, etc.) provided by governments in the local area, based on the opportunity for tax revenue-generating activities on or near BLM-managed lands, and the level of demand (and associated cost) for public services on or near BLM-managed lands.
- **Public Health and Safety:** Value for the conditions to sustain physical and mental human health at the individual and societal level. These conditions may be affected by natural disasters, other people, infrastructure, environmental hazards, access to nature, environmental quality (air/water/soil), and spaces for social interaction.
- **Visitor and Viewer Enjoyment:** Value to visitors, residents, and others associated with recreation use of BLM-managed lands (or downstream waterways), or viewing landscapes from transportation networks, homes, or businesses.
- **Way of Life/Culture:** Value for the opportunity to sustain rural lifestyles and intergenerational land uses and practices (including grazing/ranching, timber, subsistence, and cultural practices), heritage, and sense of place.
- **Social Cohesion:** Value for building or maintaining trust and social relationships, which may be affected by resource access by different groups, potential for conflict among user groups, or demographics/population change resulting from land use policies/management.
- **Passive Use of Ecosystems:** Values for natural resources and ecosystems, separate from an individual's interaction with or use of the resource or ecosystem. These values can be related to the opportunity to use the ecosystem in the future, for someone else to use it now, for future generations' ability to use it, or for the intrinsic existence of the ecosystem. This can include the ability of the ecosystem to avoid or recover from shocks and sustain healthy conditions in the long run.

Figure 1 displays these values graphically.

Figure 1. Values to Consider



Socioeconomic Values to Consider in NEPA Planning & Analysis

BLM management actions that affect resource conditions and access may, in turn, affect the following socioeconomic values.

Each socioeconomic value may have different meaning to different affected populations, and effects on each socioeconomic value may also differ among demographic groups and user groups through time.

Economic Vitality

Economic Activity & Resiliency

Opportunity for income and employment, including resiliency & stability over time.



Education & Knowledge

Learning, Interpretation, & Research

Learning & knowledge related to access to cultural, historical, & natural resources.



Public Health & Safety

Mental, Physical, & Env. Health

Environmental quality, access to nature, and safety from crime or natural disasters.



Way of Life & Culture

Traditional Land Uses & Practices

Sustaining traditional activities and maintaining heritage and sense of place.



Passive Use of Ecosystems

Intrinsic Value of Resources & Ecosystems

Stewardship values separate from interaction with or use of a resource or ecosystem.



Access to Products

Availability & Price of Goods

Opportunity to consume, use, possess, or purchase products extracted or produced on BLM lands, including meat, plants, minerals, etc. by subsistence, commercial, or other users.



Public Services

Quality & Quantity of Services

Provision of emergency services, public water supply, transportation, education, social services, etc. that may be affected by tax revenues, demand for services, and cost of services.



Visitor & Viewer Enjoyment

Recreation & Aesthetics

Recreation use of BLM lands (or downstream waterways) by visitors & residents. Aesthetic enjoyment of BLM landscapes by users on BLM lands and by others from neighboring locations.



Social Cohesion

Community Bonds & Lack of Conflict

Trust and social relationships, which may be affected by differing resource access by user groups, conflict among user groups or interest groups, or demographic/population change.



Appendix B. Data Considerations

The BLM Socioeconomics Program can provide options and recommendations for data, methods, and tools that the agency can use to meet the requirements outlined in this guidance. This appendix addresses three specific data-related concerns.

B.1 Paperwork Reduction Act Requirements for New Data Collection

The socioeconomic baseline assessment and effect analysis typically rely on existing data and do not routinely require primary data collection. Nonetheless, collecting primary data may be necessary, particularly for social impact assessment, using techniques such as surveys, focus groups, or key informant interviews. Any plan to include primary data collection should be justified in terms of gaps in available data or special circumstances. NEPA teams must ensure that any new (primary) data collection complies with the requirements of the Paperwork Reduction Act of 1995 (Public Law 10413). If answers to identical questions are to be collected from 10 or more members of the public—for example, through a survey questionnaire and detailed interview schedule—the Paperwork Reduction Act (PRA) requires Office of Management and Budget (OMB) approval for the study. Note that for purposes of the Act, “public” also applies to state, local, and tribal government employees, though not to employees of the Federal government. OMB review is normally a lengthy process, which must be initiated through the BLM Headquarters Office and can take a year or more. Unless the proposed data collection can be processed by expedited review under the terms of an existing generic OMB authorization (such as that for Customer Satisfaction Surveys), approval is likely to be time consuming. The point is not to discourage teams from collection of new data requiring approval under the PRA, but to ensure that the project schedule incorporates the time needed for OMB review and approval.

B.2 Data Quality

The BLM should use socioeconomic information prepared in a manner consistent with professionally recognized approaches, methods, and techniques. Socioeconomic baseline assessment and effects analysis must cite to any data sources throughout, and documents must include complete citations. For Indigenous Knowledge, refer to DOI guidance for more information. The agency must clearly identify and cite the basis for results and conclusions in both the baseline and effect analysis. Refer to BLM Information Quality Act Guidelines, April 2, 2018.

Citizen science is the voluntary participation of the public in the scientific process such as citizens involved in collaborative research, mediated modeling, joint fact-finding, and the like. The BLM may invite the public to fill this role to inform the socioeconomic baseline assessment or effects analysis. Citizen science can be a potential valuable asset for socioeconomic tasks given the limited internal capacity within the Socioeconomics Program and the interest from the public to assist the BLM in understanding the values integral to the public lands.

B.3 Timely Data

Socioeconomic data are typically published one to two years after collection. Therefore, even when using the most current data publicly available, the BLM should make clear that much of the information included in the socioeconomic baseline assessment reflects time lags. Where project delays occur that cause socioeconomic conditions to have changed so that the conclusions of the effects analysis for the

proposed action are no longer valid, the BLM should update the relevant data and information prior to decision-making.

Items 21 and 22 from NI 43-101 Standards of Disclosure for Mineral Projects

Rules and Policies

Item 21: Capital and Operating Costs – Provide a summary of capital and operating cost estimates, with the major components set out in tabular form. Explain and justify the basis for the cost estimates.

Item 22: Economic Analysis – Provide an economic analysis for the project that includes

- (a) a clear statement of and justification for the principal assumptions;
- (b) cash flow forecasts on an annual basis using mineral reserves or mineral resources and an annual production schedule for the life of project;
- (c) a discussion of net present value (NPV), internal rate of return (IRR), and payback period of capital with imputed or actual interest;
- (d) a summary of the taxes, royalties, and other government levies or interests applicable to the mineral project or to production, and to revenue or income from the mineral project; and
- (e) sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate, and discuss the impact of the results.

INSTRUCTIONS:

- (1) *Producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production unless the technical report includes a material expansion of current production.*
- (2) *The economic analysis in technical reports must comply with paragraphs 2.3(1)(b) and (c), subsections 2.3(3) and (4), and paragraph 3.4(e), of the Instrument, including any required cautionary language.*

§229.601(96)(iii)(B)(18) & 229.601(96)(iii)(B)(19) for Technical Report Summaries for registrants under subpart 1300 of Regulation S-K (S-K 1300)

(18) *Capital and operating costs.* (i) Provide estimates of capital and operating costs, with the major components set out in tabular form. Explain and justify the basis for the cost estimates including any contingency budget estimates. State the accuracy level of the capital and operating cost estimates.

(ii) To assess the accuracy of the capital and operating cost estimates, the qualified person must take into account the risks associated with the specific engineering estimation methods used to arrive at the estimates. As part of this analysis, the qualified person must take into consideration the accuracy of the estimation methods in prior similar environments. The accuracy of capital and operating cost estimates must comply with § 229.1302 (Item 1302 of Regulation S-K).

(19) *Economic analysis.* (i) Describe the key assumptions, parameters, and methods used to demonstrate economic viability, and provide all material assumptions including discount rates, exchange rates, commodity prices, and taxes, royalties, and other government levies or interests applicable to the mineral project or to production, and to revenues or income from the mineral project.

(ii) Disclose the results of the economic analysis, including annual cash flow forecasts based on an annual production schedule for the life of project, and measures of economic viability such as net present value (NPV), internal rate of return (IRR), and payback period of capital.

(iii) Include sensitivity analysis results using variants in commodity price, grade, capital and operating costs, or other significant input parameters, as appropriate, and discuss the impact on the results of the economic analysis.

(iv) The qualified person may, but is not required to, include an economic analysis in an initial assessment. If the qualified person includes an economic analysis in an initial assessment, the qualified person must also include a statement, of equal prominence to the rest of this section, that, unlike mineral reserves, mineral resources do not have demonstrated economic viability. The qualified person may include inferred mineral resources in the economic analysis only if he or she satisfies the conditions set forth in § 229.1302(d)(4)(ii) (Item 1302(d)(4)(ii) of Regulation S-K).