

RECLAMATION

Managing Water in the West

Windy Gap Firming Project

Final Environmental Impact Statement

Volume 1
FES 11-29



U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Eastern Colorado Area Office
Loveland, Colorado

Cooperating Agencies:

- U.S. Army Corps of Engineers
- U.S. Department of Energy,
Western Area Power Administration DOE/EIS-0370
- Grand County

November 2011

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**Eastern Area Office
Loveland, Colorado**

Filing Number: FES 11-29

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**U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region**

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Windy Gap Firming Project

Final Environmental Impact Statement

Prepared by the U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region, Eastern Colorado Area Office, Loveland, Colorado

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- U.S. Army Corps of Engineers
- U.S. Department of Energy, Western Area Power Administration
- Grand County, Colorado

Abstract: This Final Environmental Impact Statement (FEIS) describes and analyzes the potential effects of the proposed Windy Gap Firming Project (WGFP) and four alternatives to the proposed project including the No Action alternative. The WGFP includes construction of new water storage reservoirs that would allow more reliable water deliveries to Colorado's Front Range and West Slope communities and industry from the existing Windy Gap Project. Current Windy Gap facilities are unable to deliver the firm yield of water that was originally anticipated due to the limitations and constraints of the existing system. The desired condition is to add water storage and related facilities to existing Windy Gap operations capable of delivering a firm annual yield of about 30,000 acre-feet (AF) to project participants.

The proposed project is a collaborative effort among 14 water providers and users (participants) facilitated by the Municipal Subdistrict, Northern Colorado Water Conservancy District. The improved yield from the proposed project would provide project participants with additional water supplies to meet a portion of their existing and future water demands.

The FEIS evaluates five alternatives: 1) No Action; 2) Proposed Action – Chimney Hollow Reservoir (90,000 AF); 3) Chimney Hollow Reservoir (70,000 AF) and Jasper East Reservoir (20,000 AF); 4) Chimney Hollow Reservoir (70,000 AF) and Rockwell/Mueller Creek Reservoir (20,000 AF); 5) Dry Creek Reservoir (60,000 AF) and Rockwell/Mueller Creek Reservoir (30,000 AF). Alternative 2, construction of Chimney Hollow Reservoir with prepositioning, along with associated operational changes developed as part of mitigation, is the Bureau of Reclamation's preferred alternative.

A Draft Environmental Impact Statement (DEIS) was issued on August 29, 2008. This FEIS reflects public comments on the DEIS and has been prepared in compliance with the National Environmental Policy Act.

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Acronyms and Abbreviations

ac	acute
ACHP	Advisory Council on Historic Preservation
AF	acre-feet
AIRFA	American Indian Religious Freedom Act
APCD	Air Pollution Control Division
APE	Area of potential effect
APFR	Alternative Plan Formulation Report
ARNA	Arapaho National Recreation Area
BATHTUB	Water quality model
BESTSM	Boyle Engineering Stream Simulation Model
BLM	Bureau of Land Management
BMP	Best management practices
BTWF	Big Thompson Watershed Forum
°C	Degrees centigrade
CAA	Clean Air Act
C-BT	Colorado-Big Thompson Project
CDOT	Colorado Department of Transportation
CDPW	Colorado Division of Parks and Wildlife
CDPHE	Colorado Department of Public Health and Environment
CDSS	Colorado Decision Support System Model
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
ch	chronic
Chla	chlorophyll <i>a</i>
cm	centimeter
CNHP	Colorado Natural Heritage Program
CBP	Colorado butterfly plant
Corps	U.S. Army Corps of Engineers
CR	County Road
CRWCD	Colorado River Water Conservation District
CWCB	Colorado Water Conservation Board
CWCWD	Central Weld County Water District
dB	decibels
dis	dissolved
DL	Detection limit
DM	Daily maximum
DO	Dissolved oxygen
DOE	Determination of eligibility
D&RG	Denver and Rio Grande
EC	Existing conditions
ECAO	Eastern Colorado Area Office (Reclamation)
EIS	Environmental Impact Statement
elsp	early life stage present
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ft	feet
FWMP	Fish and Wildlife Mitigation Plan
FWS	U.S. Fish and Wildlife Service
GCM	Global Circulation Model
GCWIN	Grand County Water Information Network
GW	gigawatts

GWH	gigawatt-hours
gpcd	gallons per capita per day
gpd	gallons per day
HAER	Historic American Engineering Record
HOD	hypolimnetic oxygen demand
HSS	Hot Sulphur Springs
kg	kilograms
L	liter
LAP	Loveland Area Projects
LTWD	Little Thompson Water District
m	meter
M&E	Monitoring and Evaluation
MBTA	Migratory Bird Treaty Act
Moffat Project	Moffat Collection System Project
mg	milligram
mg/L	milligrams per liter
Mn	manganese
MOA	Memorandum of Agreement
MOD	metalimnetic oxygen demand
MOU	Memorandum of Understanding
MPWCD	Middle Park Water Conservancy District
mw	Megawatts
MWAT	Maximum weekly average temperature
N	Nitrogen
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NHPA	National Historic Preservation Act
NCWCD	Northern Colorado Water Conservancy District
NEPA	National Environmental Policy Act
Non-Participants	Windy Gap unitholders not participating in the Firing Project
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWCCOG	Northwest Colorado Council of Governments
NWI	National Wetland Inventory
OAHP	Office of Archeology and Historic Preservation
O&M	Operation and maintenance
P	Phosphorus
PA	Programmatic Agreement
PACSM	Platte and Colorado Simulations Model
Participants	Windy Gap Firing Project Participants
PBO	Programmatic Biological Opinion
PHABSIM	Physical Habitat Simulation
Platte River	Platte River Power Authority
POR	Period of record
Reclamation	U.S. Bureau of Reclamation
RFO	Return flow obligation
RIPRAP	Recovery Implementation Program Recovery Action Plan
RMP	Resource Management Plan
ROW	Right-of-way
SD	Secchi-disk depth
SEO	State Engineers Office
SHPO	State Historic Preservation Officer
SMP	Grand County Stream Management Plan
sp	spawning
SU	standard unit
Subdistrict	Municipal Subdistrict, Northern Colorado Water Conservation District

SWA	State Wildlife Area
TCP	Traditional Cultural Properties
T&E	Threatened and Endangered
TCP	Traditional Cultural Property
TDS	Total dissolved solids
Three Lakes	Grand Lake, Shadow Mountain Reservoir, and Granby Reservoir
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TOC	Total organic carbon
TP	Total phosphorus
TRec	Total recoverable
TSI	Trophic State Index
TSS	Total suspended solids
µg/L	micrograms per liter
USGS	U.S. Geological Survey
WCFC	Willow Creek Feeder Canal
Western	Western Area Power Administration
WGFP	Windy Gap Firming Project
WQCC	Water Quality Control Commission
WQCD	Water Quality Control Division
WWTP	Wastewater treatment plant
WY	Water Year (October 1 – September 30)
µg/L	micrograms per liter
µS	microSiemens
yr	year

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