

Draft Environmental Impact Statement

JORDAN COVE ENERGY AND PACIFIC CONNECTOR GAS PIPELINE PROJECT

Jordan Cove Energy Project, L.P. Docket Nos. CP07-444-000
Pacific Connector Gas Pipeline Project, L.P. CP07-441-000

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Cooperating Agencies

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Department of the Army, Corps of Engineers, Portland District
US Environmental Protection Agency, Region 10
US Department of Homeland Security Coast Guard, Portland
US Department of Transportation Pipeline and Hazardous Materials Safety Administration
US Department of the Interior Bureau of Land Management, Oregon State Office
US Department of the Interior Bureau of Reclamation, Klamath Basin Area Office
Douglas County, Oregon

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
AAR	Applied Archaeological Research, Inc.
ABSG	ABSG Consulting Inc.
ACDP	Standard Air Contaminant Discharge Permit
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACS	Aquatic Conservation Strategy
ACU	Administrative Conditional Use
AIA	annual instrument approach
AIRFA	American Indian Religious Freedom Act
AIS	Automatic Information System
ANSI	American National Standards Institute
AOC	area of concern
APE	Area of Potential Effect
APE	area of potential effect
API	American Petroleum Institute
Applicants	Jordan Cove Energy and Pacific Connector
AQCR	Air Quality Control Regions
AQRV	Air Quality-Related Values
ARPA	Advanced Research Projects Agency
ARPA	Archaeological Resource Protection Act
ASCE	American Society of Civil Engineers
ASL	above sea level
ASME	American Society of Mechanical Engineers
ATON	area lighting facilities, navigation aids
ATV	all-terrain vehicle
Avista	Avista Corporation
BA	biological assessment
BAC	Byram Archaeological Consulting, LLC
Baker Institute	James A. Baker III Institute for Public Policy
BBS	Breeding Bird Survey
bgs	below ground surface
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Department of Interior, Bureau of Land Management
BMP	best management practice
BO	biological opinion
BOG	boil-off gas
BOR	U.S. Bureau of Reclamation
BPA	Bonneville Power Administration
Bscfd	Billion standard cubic feet per day
Btu /ft ² /hr	British thermal units per square foot per hour
Btu	British thermal units
BVA	block valve
C	carbon
C-2	C-2 Cattle Company
CAA	Clean Air Act

CAL	Citizens Against LNG
Calpine	Calpine Corporation
CBC	Christmas Bird Count
CBEMP	Coos Bay Estuary Management Plan
CBNBWB	Coos Bay North Bend Water Board
CBWR Lands	Coos Bay Wagon Road Lands
CCM	concrete cellular mattress
CCS	carbon capture and storage
CDF	confined disposal area
CEC	California Energy Commission
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
Chevron	Chevron Corporation
CHU	critical habitat unit
CLC	California State Lands Commission
CM	channel mile
CMMS	computerized maintenance management system
CMP	compensatory mitigation program
CMP	Compensatory Mitigation Program
CMZ	Channel Migration Zone
CO	carbon monoxide
CO ₂	carbon dioxide
Coast Guard	U.S. Coast Guard
COC	Certificate of Compliance
COE	U.S. Army Corps of Engineers
COI	Certificate of Inspection
Commission	Federal Energy Regulatory Commission
Conservancy	Southern Oregon Land Conservancy
Coos Tribes	Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
Costa Azul	Costa Azul LNG terminal
COTP	Captain of the Port
Cow Creek Tribe	Cow Creek Band of Umpqua Tribe of Indians
CPR	cardio-pulmonary resuscitation
CRITFC	Columbia River Inter-Tribal Fish Commission
CSA	conservation support area
CSZ	Cascadia Subduction Zone
CWA	Clean Water Act
cy	cubic yard
CZMA	Coastal Zone Management Act
DA	Development Aquatic
DAT	Deposition Analysis Threshold
dB	decibel
dBA	A-weighted decibels
dbh	diameter at breast height
DBV/PERC	double ball valve and powered emergency release coupling
DCS	distributed control system
DE	Design Earthquake
DEA	David Evans & Associates, Inc.
DEGADIS	dense gas dispersion model

DEM	digital elevation model
DMEF	Dredged Material Evaluation Framework
DMMU	Dredged Material Management Unit
DOD	U.S. Department of Defense
DOE	U.S. Department of Defense
DOGAMI	Oregon Department of Geology and Mineral Industries
DOT	U.S. Department of Transportation
DPS	Distinct Population Segments
Dth	decatherm
Dth/d	decatherms per day
EAO	Environmental Assessment Office
ECRP	Erosion Control and Revegetation Plan
EEZ	economic exclusion zone
EFH	essential fish habitat
EFSC	Oregon Energy Facility Siting Council
EI	Environmental Inspector
EIA	Energy Information Administration
EIS	environmental impact statement
El Paso	El Paso Corporation
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act
EPIC	Environmental Protection Information Center
ERP	emergency response plan
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESCP	Erosion and Sedimentation Control Plan
ESD	emergency shutdown
Esperanza	Esperanza Energy, LLC
ESU	Evolutionarily Significant Units
Excelerate	Excelerate Energy, LLC
FAA	Federal Aviation Administration
FC	foot candle
FCC	Federal Communications Commission
FEED	front-end engineering design
FEL	Family Emissions Limits
FERC	Federal Energy Regulatory Commission
Finavera	Finavera Renewables Ocean Energy, Ltd.
FLPMA	Federal Land and Policy Management Act of 1976
FMP	fishery management plans
FMSC	Federal Maritime Security Council
FOI	Forest Operations Inventory
fps	foot per second
FSO	Facility Security Officer
FSRU	Floating storage and regasification unit
ft ³ /min	cubic feet per minute
FWS	U.S. Department of the Interior, Fish and Wildlife Service
FY04	Fiscal Year 2004
GAO	U.S. General Accounting Office
GBS	gravity-based structure
GHG	greenhouse gases

GIS	geographic information system
GMA	Groundwater Management Area
gpd	gallons per day
gpm	gallons per minute
gr/scf	grains per standard cubic foot
Grand Ronde Tribes	Confederated Tribes of the Grand Ronde Reservation
GTN	Gas Transmissions Northwest Corporation
GW	gigawatt
GWA	Groundwater Management Area
GWP	global warming potential
HAP	Hazardous Air Pollutant
HAZOP	hazardous operation
HCA	High Consequence Area
HDD	horizontal directional drill
HDPE	high-density polyethylene
HEC-RAS	Hydrologic Engineering Center-River Analysis System
HMP	Habitat Mitigation Policy
HMU	Herd Management Unit
hp	horsepower
HPS	high pressure sodium
HRA	Historical Research Associates, Inc.
HU	hydrologic unit
I/O	input/output
I-5	Interstate 5
IBC	International Building Code
ICF	ICF International
IF	Importance Factor
IMO	International Maritime Organization
IMP	Integrity Management Program
INGAA	Interstate Natural Gas Association of America
IP	Implementation Plan
IRA	Inventories Roadless Area
ISPS Code	International Ship and Port Facility Security Code
IWP	Industrial Waste Pond
JCE & PCGP	Jordan Cove Energy and Pacific Connector Gas Pipeline Project
Jordan Cove	Jordan Cove Energy Project L.P.
JPA	Joint Permit Application
km	kilometer
KOP	key observation point
kPa	kilopascals
kV	kilovolt
kVa	kilovolt amperes
kW	kilowatt
kWh	kilowatt-hour
Latgawa Tribe	Latgawa Native American Indian Tribe
lb/MWh	pound per megawatt-hour
LCFRB	Lower Columbia Fish Recovery Board
LDC	local distribution company
Levy	Lloyd Levy Consulting, LLC
LFL	lower flammable limit

LM	locomotive and marine
LNG	liquefied natural gas
LOI	Letter of Intent
LOR	Letter of Recommendation
LRMP	Land and Resource Management Plan
LSR	Late Successional Reserve
LUBA	Oregon Land Use Board of Appeals
LUCS	land use compatibility statement
LWD	large woody debris
m^2	square meter
m^3	cubic meters
m^3/hr	cubic meters per hour
m^3/yr	cubic meters per year
MACT	Maximum Achievable Control Technology
MAMU	marbled murrelet
MAOP	maximum allowable operating pressure
MARAD	U.S. Department of Transportation, Maritime Administration
MARSEC	Maritime Security
MBF	thousand board feet
MBTA	Migratory Bird Treat Act
MCE	Maximum Considered Earthquake
mcf	thousand cubic feet
mcf/d	thousand cubic feet per day
mcy	million cubic yards
MEPC	Marine Environment Protection Committee
$\mu g/m^3$	micrograms per cubic meter
mg/l	milligram per liter
mg/l	milligram per liter
mgd	million gallons per day
MHHW	mean higher high water
MIIH	May Impact Individuals or Habitat
mL	milliliter
MLA	Mineral Leasing Act
MLLW	mean lower low water
MLRA	Major Land Resource Area
MLV	mainline block valve
mm	millimeter
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MP	milepost
MPRSA	Marine Protection, Research, and Sanctuary Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
Mscfd	million standard cubic feet per day
MSL	mean sea level
MW	megawatt
MWh	megawatt-hour
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAGPRA	Native American Graves Protection and Repatriation Act
NAICS	North American Industry Classification System
NAS	Non-indigenous aquatic species
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NF	National Forest
NFPA	National Fire Protection Association
NFS	National Forest System
NGA	Natural Gas Act
NGL	natural gas liquid
NHPA	National Historic Preservation Act
NMFS	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NMHC	non-methane hydrocarbon
nmi	nautical mile
NNSR	Nonattainment New Source Review
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NorthernStar	Bradwood Landing LLC and NorthernStar Energy LLC
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NR	Non-road
NRA	National Recreation Area
NRCS	Natural Resources Conservation Service
NRF	nesting, roosting, and foraging
NRHP	National Register of Historic Places
NRLM	Non-road, locomotive, and marine
NSA	Noise-Sensitive Area
NSO	northern spotted owl
NSPS	New Source Performance Standards
NSR	New Source Review
NTU	nephelometric turbidity unit
NVIC	Navigation and Vessel Inspection Circular
NWFP	Northwest Forest Plan
NWFP	Northwest Forest Plan
NWGA	Northwest Gas Association
NWI	National Wetlands Inventory
NWPCC	Northwest Power and Conservation Council
O&C Lands	Oregon and California Lands
OAAQS	Oregon Ambient Air Quality Standards
OAR	Oregon Administrative Record
OBE	Operating Basis Earthquake
OCIMF	Oil Companies International Marine Forum
OCMP	Oregon Coastal Management Program
OCRM	National Oceanic and Atmospheric Administration Office of Coast and Ocean Resource Management
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality

ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODHS	Oregon Department of Human Services
ODLCD	Oregon Department of Land Conservation and Development
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
ODPR	Oregon Department of Parks and Recreation
ODSL	Oregon Department of State Lands
ODWR	Oregon Department of Water Resources
OEP	FERC's Office of Energy Projects
OHMW	ordinary high water mark
OHV	Off-Highway Vehicle
OHWM	ordinary high water mark
OPRD	Oregon Parks and Recreation Department
OPS	Office of Pipeline Safety
OPUC	Oregon Public Utility Commission
Oregon LNG	LNG Development Company LLC and the Oregon Pipeline Company
ORNHIC	Oregon Natural Heritage Information Center
ORS	Oregon Revised Statute
ORV	open rack vaporizer
OSHA	Occupational Safety and Health Administration
OSMB	Oregon State Marine Board
OSMRE	Office of Surface Mining Reclamation Enforcement
OSWB	Oregon State Weed Board
OWL	Oregon Women's Land Trust
Pacific Connector	Pacific Connector Gas Pipeline L.P.
PAG	Plant Association Group
PAH	polynuclear aromatic hydrocarbon
Paiute	Paiute Pipeline Company
Palomar	Palomar Gas Transmission, LLC
PAR	permanent access road
PCB	polychlorinated biphenyl
PCE	primary constituent element
PCS	Potential Contaminated Site
PCT	Pacific Crest Trail
pf	power factor
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
PGA	peak horizontal ground acceleration
PHMSA	Pipeline Hazardous Materials Safety Administration
PI	point of intersection
PIF	Partners in Flight
PILT	Payment In Lieu of Taxes
PM ₁₀	particulate matter with a diameter of less than 10 microns
PM _{2.5}	particulate matter with a diameter of less than 2.5 microns
POD	Plan of Development
Port	Oregon International Port of Coos Bay
PORTS	Physical Oceanographic Real-Time System
PP&L	Pacific Power and Light Company
PPV	peak particle velocity

PRG	preliminary remedial goal
Project	Jordan Cove Energy and Pacific Connector Gas Pipeline Project
PSD	Prevention of Significant Deterioration
PSE	Puget Sound Energy
PSEL	Plant Site Emission Limit
PSHA	Probabilistic Seismic Hazard Analysis
psi	pounds per square inch
PST	Pacific Standard Time
PUC	Public Utilities Commission
Quest	Quest Consultants, Inc
RBC	Risk-Based Concentration
REX	Rocky Express Pipeline project
RFPD	Rural Fire Protection Districts
RHA	Rivers and Harbors Act
RMT	Regional Management Team
RNA	Research Natural Area
ROD	Record of Decision
Roseburg	Roseburg Forest Products
RPT	rapid phase transition
RV	recreational vehicle
S&M	Survey and Manage
Sa	spectral acceleration
SAP	sampling and analysis plan
SAR	Sodium Adsorption Ratio
SAV	submerged aquatic vegetation
SCADA	supervisory control and data acquisition
scf	standard cubic feet
SCV	submerged combustion vaporizer
SD	scaled distance factor
SDG&E	San Diego Gas and Electric
Sempra	Sempra Energy
SER	Significant Emission Rate
SES	Sound Energy Solutions
SHN	SHN Consulting Engineers & Geologists, Inc.
SHPO	State Historic Preservation Officer
SIGTTO	Society of International Gas Tanker and Terminal Operations
SIL	significant impact level
Siletz Tribes	Confederated Tribes of the Siletz Reservation
SIO	Scenic Integrity Objective
SIS	safety instrumented system
SMS	Scenery Management System
SMU	Species Management Units
SO ₂	sulfur dioxide
SoCal	Southern California Gas
SOLAS	Safety of Life at Sea
SONCC	Southern Oregon/Northern California Coast
SOPEP	shipboard oil pollution emergency plan
SOULA	Southern Oregon University Laboratory of Anthropology
SPCCP	Spill Prevention, Containment, and Countermeasures Plan
Spectra	Spectra Energy

SRMA	Special Recreation Management Area
SSE	Safe Shutdown Earthquake
SSI	Sensitive Security Information
SSNERR	South Slough National Estuarine Research Reserve
STV	shell-and-tube vaporizer
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TACT	Typically Achievable Control Technology
TAR	temporary access road
Tcf	trillion cubic feet
TCP	Traditional Cultural Property
TEQ	toxic equivalent
TEWA	temporary extra work area
TMDL	Total Maximum Daily Load
TMMP	Turbidity Monitoring and Management Plan
TNT	trinitrotoluene
TORP	Terminal Offshore Regas Plant
TORP	Terminal Offshore Regas Plant
TPH	total petroleum hydrocarbon
TPY	tons per year
TRC	TRC Environmental Corporation
TSS	total suspended solids
Tuscarora	Tuscarora gas transmission system
TVS	total volatile solid
UBC	Uniform Building Code
UCSA	uncleared storage area
UDP	Unanticipated Discovery Plan
UGB	Urban Growth Boundary
UPS	uninterruptible power system
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Department of Agriculture Forest Service
USGS	U.S. Geological Survey
UV/IR	ultraviolet/infrared
v/c	volume-to-capacity ratio
VMS	Visual Management System
VOC	volatile organic compound
VQO	Visual Quality Objective
VRM	visual resource management
V_s	shear velocity
VSO	Vessel Security Officer
Water Board	Coos Bay-North Bend Water Board
WCSB	Western Canada Sedimentary Basin
WD	Water-Dependent Development Shorelands
WestPac	WestPac Terminals, Inc.
WHRU	waste heat recovery unit
Williams Northwest	Williams Northwest Pipeline Company
Williams Pacific Operator	Williams Pacific Connector Gas Operator, LLC
WNV	West Nile virus
Woodside	Woodside Energy, Inc.

WQC	401 Water Quality Certification
WRCC	Western Regional Climatic Center
WSA	Water Suitability Assessment
WSR	Water Suitability Report
WUTC	Washington Utilities and Transportation Commission

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