



WATER ON THE ROCKS

Oil Shale Water Rights in Colorado

Oil shale development would have tremendous impacts on current and future uses of water — Colorado's most precious natural resource — with enormous implications for the state's economies, communities, and ways of life. Information that Western Resource Advocates gathered from the RAND Corporation and the U.S. Departments of Energy and the Interior concludes that significant amounts of water will be required to extract oil from shale and to power that extraction process. Large quantities of water will also be needed to support major infrastructure development (e.g., schools, hospitals, roads) and the influx of new workers.

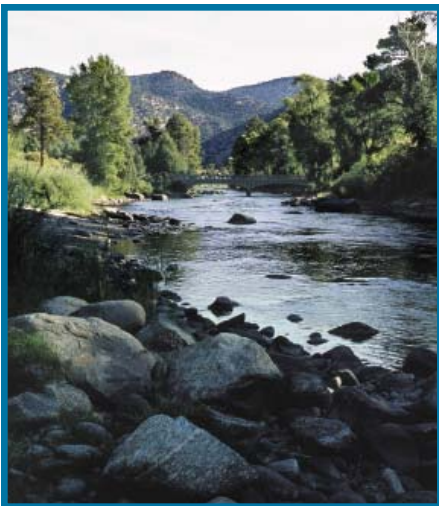
Given the magnitude of development the Bureau of Land Management (BLM) projects is one day feasible, as much as 378,000 acre-feet of water could be required annually to support oil shale development, more than the Denver Metro area, with a population of 1.4 million, uses each year.

Estimated Oil Shale Water Demands¹

Source of Water Demand	Annual Quantity (af)
Direct demand (1.55 million barrels per day)	112,675
Electric power	244,535
Increased population	21,100
Total	378,310

Western Resource Advocates' report, "Water on the Rocks: Oil Shale Water Rights in Colorado," is groundbreaking because it:

1. Projects water requirements associated with oil shale development.
2. Identifies all major water rights currently owned by energy companies that could be used for oil shale development in Colorado, as well as conditional rights that could be exercised in the future. Rights are grouped by basin, source, point of diversion, and diversion amount.
3. Analyzes legal and hydrological issues of the Colorado River Basin that affect future development of Colorado's allocation under the 1992 Colorado River Compact and subsequent 1948 Upper Basin Compact.
4. Explains how the Upper Colorado River Endangered Fish Recovery Program affects and limits additional consumptive uses of water in the Colorado River.



To meet the significant water demands associated with oil shale development, oil companies and water supply districts have secured hundreds of water rights through western Colorado. Many of these rights were established in the 1950's and 1960's, and collectively would enable the direct diversion of more than 10,000 cubic feet per second (cfs) of water and the storage of more than 1.7 million acre-feet (af). In addition, energy companies have acquired full or partial ownership of more than 100 existing irrigation ditches currently used for agriculture.

DESPITE THESE VAST HOLDINGS, THEY ARE SEEKING MORE WATER.

¹ Colorado, Yampa, and White River Basin Roundtables Energy Subcommittee, Energy Development Water Needs Assessment (Phase 1 Report), September 2008, p. 4-7.

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WESTERN RESOURCE ADVOCATES' CONCLUSIONS

"Water on the Rocks" is all the more significant when viewed in the larger socioeconomic context of oil shale development. WRA has reached the following five conclusions.

#1: Commercial oil shale development would transform western Colorado communities.

Before triggering such fundamental economic and socioeconomic changes, it is imperative policy makers evaluate and discuss in great detail these changes and decide whether they are necessary, warranted, and appropriate. The massive oil shale bust in 1982 devastated western Colorado communities.

#2: Oil shale development in western Colorado would affect Colorado's Front Range communities and must be thoroughly evaluated and understood. Front Range water providers, such as the Denver Water Board and the Northern Colorado Water Conservancy District, agree with the Colorado River Water Conservation District on one key conclusion — oil shale development will stress and/or compromise future water projects as well as existing projects throughout Colorado.

#3: Oil shale will accelerate climate change and will further stress water availability. Climate change exacerbates and potentially eclipses all other foreseeable stresses on the environment in the region. Oil shale development poses serious climate threats as production will likely result in the generation of huge quantities of greenhouse gas emissions.

#4: Water needs must be quantified and supply sources identified before committing to commercial oil shale leasing. The vast holdings of undeveloped water rights owned by oil companies create uncertainty for other regional water users. Future municipal development, power production, and other types of energy development are expected to rely on water from the Colorado River. Water will be further limited as a result of changes in climate, population, and changing land uses both within and outside the Colorado River Basin.

#5: Energy demands must be quantified and sources identified before committing to commercial oil shale leasing. The BLM estimates that a 100,000-barrel-per-day (bpd) oil shale operation using in-situ conversion technology would likely require 1,200 megawatts (MW) of electricity. That amount of energy roughly equates to the amount needed to serve a city of 500,000. To produce one million barrels of shale oil per day would require ten new power plants and five new coal mines. In addition to the water needed by various extraction technologies, water would also be required to produce energy to run the extraction process.

Shale development could be constrained by obligations under the 1922 Colorado River Compact, as increased consumption of water would also increase the risk of a "call" by the Lower Colorado Basin states against the Upper Basin. Oil shale development is also subject to constraints resulting from the Upper Colorado River Endangered Fish Recovery Program.

DESPITE HAVING CORNERED THE MARKET ON FUTURE WATER DEVELOPMENT, OIL COMPANIES ARE STILL SEEKING TO SECURE MORE WATER.

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