

12.4 **Energy development water needs assessment and water supply alternatives analysis**

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Water requirements for generation of liquid hydrocarbons from oil shale can be categorized into direct and indirect demands. Direct demands include those uses associated with construction, operation, production, processing, and reclamation processes that are directly required for oil shale development and commercial production of a petroleum product suitable for refinement. Water demand associated with electrical energy needed to support the above processes is considered a direct demand. Indirect demands include water required to support population growth and economic activity resulting from production of shale oil. In 2005, through HB 05-1177, Colorado initiated a water planning process that involved nine Basin Roundtables, each representing a specified basin or geographic area. Through the HB 1177 process, the Colorado Basin Roundtable and the Yampa/White Basin Roundtable initiated the Energy Development Water Needs Assessment and Water Supply Alternatives Analysis (the study). Phase I of the study, which was initiated in 2008, provided a comprehensive estimate of direct water demands for natural gas, coal, uranium and oil shale energy development. Phase I also provided estimates of the indirect demands brought about by population growth and electrical generation needed to support energy development. In addition, Phase I provided a listing of water rights owned by energy companies. The Phase I final draft report was released in September 2008. The overall goal of Phase II is to refine the water demand estimates from Phase I, analyze the implications of energy-related water development, and arrive at alternative water supply projects that could help meet energy development needs, while providing for the water needs of municipal, agricultural, and in-stream uses. In Phase II, water rights, water resources, and demands for water (existing and future) are modeled using the CDSS StateMod water rights allocation models for the Colorado and White river basins.