

## **Tool for Assessing the Economic, Societal and Environmental Tradeoffs in Oil/Gas Produced Water Management and Reuse**

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The oil and gas industry consumes and produces water. Rapid growth in the industry has led to both increased demand on freshwater as well as increased volumes of produced water that requires disposal or treatment for reuse. Treating produced water for beneficial reuse both inside and outside the oil and gas sector has become an attractive option; however, reuse outside the oil and gas sector is challenging because of poorly understood risks. Toward this need we have developed an integrated model for assessing the economic, societal and environmental tradeoffs associated with alternative produced water management and fit-for-purpose treatment and reuse strategies related to oil and gas development and production. The tool is easy to use, publicly available, quantitative and tailored to the unique characteristics of an oil/gas project and locale. Considerations include both source water selection and produced water treatment, application, and disposition. The model user interface was designed for ease of utilization by producers, technology developers, economic development agencies, and regulatory agencies to help guide in the development of sound science-based decisions on the reuse of treated produced water for maximum societal and economic benefits while protecting public, environmental, and ecological health and safety. While the tool was created to support oil and gas produced water treatment and reuse management decisions in Southeastern New Mexico (Delaware Basin), the model serves as a proof-of-concept platform and inform future extensions to other oil and gas regions of the U.S.