Technical and economic changes since Black Monday, 1982 – their impact upon the shale oil industry

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The inhabitants of the Colorado Western Slope knew May 2, 1982 as Black Monday – the day Exxon pulled out of its $5B Colony project, closing a brief window of shale oil activity. Two and a half decades later, there are renewed stirrings of interest in shale oil, spurred on by crude oil prices of $70/bbl. Is this another brief window or the beginnings of a sustainable trend?

On the technological side, the mining, mineral processing, and petroleum industries have all seen considerable technological changes over this period. To varying degrees, these changes will affect upon the viability of any future shale oil projects. The evolution of larger scale and better mining and processing equipment is discussed, with a particular interest in how these might reduce the cost of potential oil shale extraction. The petroleum industry has seen some interesting advances that may contribute to improved in-situ retorting proposals.

On the economics side, there have been price and non-price effects. Higher crude oil prices seem to have improved the landscape for shale oil economics, but in real terms, $70/bbl is similar to the prices in the early 1980's. An enhanced version of the Hubbert curve, so familiar to petroleum geologists, is used in identifying the conditions that would be needed to signal a sustainable shift towards shale oil processing.

Two new non-price economics issues have arisen since 1982. First, concerns over CO_2 emissions from shale oil extraction represent a new challenge to the industry. Second, the recent concept of Net Energy Balance, which has proven controversial to the booming ethanol fuel industry, represents a threat to the shale oil industry.