SLIDES: Oil Shale Water Needs, State Water Planning and the Colorado River Compact

Daniel R. Birch

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Oil Shale Water Needs, State Water Planning and the Colorado River Compact

Natural Resources Law Center
University of Colorado Law School at Boulder

“The Promise & Peril of Oil Shale”

Denver, CO
February 5, 2010

Daniel R. Birch
Deputy General Manager

Colorado River District
Protecting Western Colorado Water Since 1937
River District Role and Caveats

- Neither proponent or opponent of oil shale
- Want to promote sound water planning
- Want to ensure oil shale water demands are considered in statewide planning efforts
NOTE: This bill has been prepared for the signature of the appropriate legislative officers and the Governor. To determine whether the Governor has signed the bill or taken other action on it, please consult the legislative status sheet, the legislative history, or the Session Laws.

**An Act**

HOUSE BILL 05-1177

BY REPRESENTATIVE(S) Penry, Buescher, Decker, Liston, Massey, White, Beraen, Clapp, Crance, Gallegos, Hall, Hoppe, Jahn, Kerr, Knodel, Pacquiao, Pose, Stafford, Stengel, Sullivan, Romanoff, Boyd, Brophy, Coleman, Frangas, Harvey, King, Madden, May, McClue, McFadden, and Todd; also SENATOR(S) Ingas, Tapia, Taylor, Entz, Grossman, Koster, Fitz-Gerald, Groff, Feek, and Tupa.

Concerning the negotiation of interbasin compacts regarding the equitable division of the state's waters, and making an appropriation in connection therewith.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Title 37, Colorado Revised Statutes, is amended by the addition of a new article to read:

**ARTICLE 75**

Interbasin Compacts

37-75-101. Short title. This article shall be known and may be cited as the "Colorado Water for the 21st Century Act".

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.
HB05-1177

- Created Basin Roundtables
- Basin Roundtables charged with completing water needs assessments
- Also created IBCC
- IBCC working on identifying portfolios to meet “Gap”
Colorado's Future M&I Water Needs

- 2050 Water Needs High
- 2050 Water Needs Medium
- 2050 Water Needs Low

IPPs if 50% Successful

Existing Supplies
Scenarios – Different future conditions. Each scenario represents a different, but plausible, representation of circumstances that would result in differing statewide consumptive and nonconsumptive water demand and water supply. The IBCC is considering 5 different scenarios.

Demand Factors:
- M&I Growth
- Energy Demands
- Identified Projects and Processes
- Uncertainty

Supply Factors:
- Colorado River Hydrologic Variability
- Climate Change
- Compact Considerations
*Portfolios* – Combinations of strategies which collectively meet statewide water demands. Portfolios can be developed for each future scenario.

**Demand Factors:**
- M&I Growth
- Energy Demands
- Identified Projects and Processes
- Uncertainty

**Supply Factors:**
- Colorado River Hydrologic Variability
- Climate Change
- Compact Considerations
Table 4. New Water Supply Development Thematic Portfolio

<table>
<thead>
<tr>
<th>M&amp;I Needs</th>
<th>Statewide</th>
<th>West Slope</th>
<th>East Slope</th>
<th>North Platte/ Rio Grande</th>
</tr>
</thead>
<tbody>
<tr>
<td>M&amp;I Water Needs (AFY)</td>
<td>922,800</td>
<td>203,100</td>
<td>708,500</td>
<td>11,200</td>
</tr>
<tr>
<td>SSI Water Needs (AFY)</td>
<td>84,400</td>
<td>45,300</td>
<td>39,100</td>
<td>0</td>
</tr>
<tr>
<td>Oil Shale Water Needs (AFY)</td>
<td>43,700</td>
<td>43,700</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total M&amp;I Needs (AFY)</td>
<td>1,050,900</td>
<td>292,100</td>
<td>747,600</td>
<td>11,200</td>
</tr>
</tbody>
</table>

**Strategies**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Statewide</th>
<th>West Slope</th>
<th>East Slope</th>
<th>North Platte/ Rio Grande</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPPs (AFY)</td>
<td>281,000</td>
<td>94,800</td>
<td>182,300</td>
<td>3,900</td>
</tr>
<tr>
<td>Conservation (AFY)</td>
<td>85,400</td>
<td>34,100</td>
<td>49,000</td>
<td>2,300</td>
</tr>
<tr>
<td>New Supply Development (AFY)</td>
<td>350,000</td>
<td>163,200</td>
<td>186,800</td>
<td>0</td>
</tr>
<tr>
<td>Reuse (AFY)</td>
<td>93,400</td>
<td>0</td>
<td>93,400</td>
<td>0</td>
</tr>
<tr>
<td><strong>New Supply Development Sub-Total (AFY)</strong></td>
<td>443,400</td>
<td>163,200</td>
<td>280,200</td>
<td>0</td>
</tr>
<tr>
<td>Ag Transfer (AFY)</td>
<td>162,400</td>
<td>0</td>
<td>157,400</td>
<td>5,000</td>
</tr>
<tr>
<td>Reuse (AFY)</td>
<td>78,700</td>
<td>0</td>
<td>78,700</td>
<td>0</td>
</tr>
<tr>
<td><strong>Ag Transfer Sub-Total (AFY)</strong></td>
<td>241,100</td>
<td>0</td>
<td>236,100</td>
<td>5,000</td>
</tr>
</tbody>
</table>

**Reduction in Irrigated Acres (percent)**

<table>
<thead>
<tr>
<th></th>
<th>12%</th>
<th>4%</th>
<th>23%</th>
<th>1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in Irrigated Acres (percent)</td>
<td></td>
<td></td>
<td>16% Arkansas</td>
<td>25% South Platte</td>
</tr>
<tr>
<td>Reduction in Irrigated Acres (acres)</td>
<td>309,400</td>
<td>38,667</td>
<td>264,000</td>
<td>6,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>51,600 Arkansas</td>
<td>212,400 South Platte</td>
</tr>
</tbody>
</table>
New Supply Development Thematic Portfolio to Meet 2050 M&I Needs

- 2050 M&I Water Needs
- IPPs
- Colorado River System
- Agricultural Transfer Reuse
- 2050 SSI Water Needs
- Conservation
- Colorado River System Reuse
- Agricultural Transfer
- 2050 Oil Shale Water Needs
- Land Use/Density
- Reuse for Ag Use
Colorado's Remaining Apportionment

- Previous Studies
- 2007 Hydrologic Determination
- Modeled Study Period (1950-2005)
- Extended Historical Hydrology
- Alternate Climate Projections (2040)

Remaining Apportionment, MAF
(Includes CRSP Evaporation)
Final Thoughts

Who the heck knows what will happen with oil shale? But if it goes, it may go big.

If industry is not able to either perfect existing conditional water rights or appropriate new water rights, it will look to convert existing uses of water, most likely agricultural water.

There may not be enough water to satisfy a significant oil shale industry and/or a large TMD.
Questions/Comments?