INTERSECTION OF ENERGY AND WATER POLICY IN THE WEST

SENATOR CHRIS HANSEN, PHD (D-DENVER)
Sources: American Coalition for Clean Coal Electricity; Energy Information Administration

• Across 43 states, 558 coal-fired electric generating units (105,000 MW) have shut down or plan to shut down over the period 2010 – 2025, approximately 30% of the total installed base.*

• Coal plant closures are likely to accelerate, given the lower costs of alternative generation

• How can Colorado plan for this eventuality and reduce the impact of closures on affected Colorado workers and communities?
THE SOLUTION: COLORADO SENATE BILL 19-236

- Prompts an investigatory docket for RTO/EIM & grid interconnection
- Requires utilities to account for the social cost of carbon in their electric resource planning ($46/ton)
- Authorizes the PUC to issue financing orders for utilities to securitize to lower costs for customers when retiring generation assets
- Authorizes the PUC to ensure ratepayer protections when utilities use ratepayer backed bonds
- Consideration of workforce and community impacts in future resource planning
SAMPLE COAL POWER PLANT BOOK VALUE

Even though the original 1970 power plant construction costs have long since been paid off, subsequent improvements have not.

KEY QUESTION: should customers have to pay for ill-advised investments?

Source: Energy Democracy Initiative
24 STATES HAVE STATUTES THAT PERMIT SECURITIZATION OF UTILITY ASSETS

Source: Saber Partners, LLC
HOW SECURITIZATION LOWERS COSTS (OVERVIEW)

1. Costs for existing coal plants (including operation costs, depreciation, and utility profits) are high.

2. Refinancing depreciation and profits through securitization lowers costs, sometimes significantly.

3. Utility returns
   - However, the utility no longer has an asset on which to earn profits

First Year Cost of Energy ($/MWh)
- Coal plant costs
  - Current Asset $55/MWh
  - Accelerated Depreciation $68/MWh
  - Securitization $30/MWh

Source: Sierra Club
THE INTERPLAY OF COAL PLANTS AND WATER

• Cumulatively, coal plants currently operating in Arizona, New Mexico, Colorado, Utah, Nevada, Montana, and Wyoming consumed 370.6 billion gallons of water between 2014-2018.

• That amounts to an average of more than 76 billion gallons of water each year, or 208 million gallons each day.

• What impact will these continuing coal plant closures have on water resources in the West?
PATH 1: CLOSING COAL PLANTS AS SCHEDULED

- Coal plants in the Western U.S. will consume an estimated 886 billion gallons of water by 2040 if closed on current schedules.
- Continuing to use coal and adding CCS technology would be even worse.
- Studies show that this could increase water consumption by about 75% and water withdrawal by 64% - 97%.

### Colorado case study (all figures are in millions of gallons)

<table>
<thead>
<tr>
<th>Coal plant name</th>
<th>Total water consumption 2014 – 2018</th>
<th>Average annual water consumption</th>
<th>Average daily water consumption</th>
<th>Water source</th>
<th>Closure date</th>
<th>Estimated water consumption 2020 – 2040/ closure date</th>
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<tbody>
<tr>
<td>Comanche Generating Station</td>
<td>17,127</td>
<td>3,425</td>
<td>9.38</td>
<td>Arkansas River</td>
<td>Unit 1: 2022 Unit 2: 2025 Unit 3: None</td>
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<td>Craig Station</td>
<td>15,274</td>
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<td>Yampa River</td>
<td>Unit 1: 2025 Unit 2: 2028 Unit 3: 2030</td>
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<td>Hayden Generating Station</td>
<td>8,064</td>
<td>1,613</td>
<td>4.42</td>
<td>Yampa River</td>
<td>Unit 1: 2030 Unit 2: 2036</td>
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<td>Martin Drake Power Plant</td>
<td>1,613</td>
<td>323</td>
<td>0.88</td>
<td>Reclaimed municipal water</td>
<td>Unit 1: 2017 Units 2 &amp; 3: 2023</td>
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<td>Ray D Nixon Power Plant</td>
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<td>Totals</td>
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</tbody>
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Sources: Energy & Policy Institute; Energy Information Administration; Energy, Sustainability and Society
PATH 2: USE SECURITIZATION TO CLOSE COAL PLANTS AHEAD OF SCHEDULE & SAVE BILLIONS

- Xcel Energy customers could save $467 million (NPV) from securitizing the remaining costs of each coal asset upon replacement.

- Retiring all 10 of Colorado’s coal plants not scheduled to close before 2025 would save customers ~$1.5 billion if replaced with solar, wind and batteries.

Source: Strategen Consulting - Colorado Coal Plant Valuation Study
PATH 2: USE TOOLS LIKE SECURITIZATION TO CLOSE COAL PLANTS AHEAD OF SCHEDULE & SAVE BILLIONS

- Closing coal plants in the West (AZ, NM, CO, UT, NV, MT, and WY) by 2040 could save 886 billion gallons of water.
- Water resources in these states are already strained, and these savings could bolster and maintain water for:
  - Drinking and Household Needs
  - Recreation & Tourism
  - Industry and Commerce
  - Agriculture
WATER STRESS & COAL PLANT DISTRIBUTION OVERLAY

Exhibit 4
Water stress to be most severe in the Rockies, the Colorado River region and California.

Sources: Moody’s; Energy Information Administration
Which path do we want to take?
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