Decarbonization Strategies for Colorado

Colorado Energy Research Collaboratory
Webinar
July 28, 2020

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Colorado Public Utilities Commission
Decarbonization Strategies for Colorado

PUC-specific:
- interpret
- Implement (via utilities)
- Incite?

Electric:
- carbon-based decision making, w/in resource planning
- bringing Tri-State into the process

Natural Gas (LDC's):
- ? (Investigatory docket may be forthcoming)
Colorado Emissions Projects: 2020-2050

Economy-wide Emissions by Scenario

CO Historical Emissions

Reference

26% below 2005 levels

2019 Action

50% below 2005 levels

COVID Impacts

HB 1261 Targets

90% below 2005 levels

Source: GHG Roadmap Presentation to CO Chamber of Commerce (CDPHE, CEO et al – July 2020)
HB 1261 Targets
Updated Emissions by Sector

2030 Targets

2019 Action Scenario vs. HB 1261 Targets Scenario

GHG Emissions (MMT CO2e)

- Electricity
- Oil & Gas
- Transportation
- Buildings
- Industry
- Agriculture, HFCs, Waste, Coal Mine Methane

% reduction by sector (vs. 2015): 70%, 49%, 41%, 13%, 27%, 40%

Source: CO GHG Roadmap Scenarios Presentation to AQCC (E3 – June 2020)
From everyone to whom much has been given, much will be required.

*Luke 12:48 (NRSV)*
PSCo System Energy Mix

Decision 09/10/18 (CO Energy Plan Portfolio) Retiring 660 MW of PSCo Coal Generation

“…we determine that the costs are comparable of the CEP Portfolio, which embodies the early retirement of Comanche units 1 and 2, and the costs of the Preferred ERP Portfolio, which assumes the continued operation of the Comanche units through their expected retirement dates. Given the comparability of the costs of these two portfolios, we focus on the relative benefits of the two options.”

“…we conclude that the CEP Portfolio can be acquired at a reasonable cost and rate impact due to the abundant competitively priced bids for new utility resources available to Public Service and due to the ratepayer protections we adopt for the new wind resources that the Company proposes to own.”
HB 1261 Targets Scenario: Updated Emissions by Sector

2019 Action Scenario

- Electricity
- Oil & Gas
- Transportation
- Buildings
- Industry
- Agriculture
- HFCs, Waste, Coal Mine CH4

2050 Targets

% reduction by sector (vs. 2015):
- 94%
- 91%
- 96%
- 100%
- 94%
- 43%
- 65%

Source: CO GHG Roadmap Scenarios Presentation to AQCC (E3 – June 2020)
HB 1261 Targets Scenario: Electricity Generation & Emissions

Key Observations

- Beginning in 2040, natural gas with CCS plants are used to serve base load while meeting emission targets

<table>
<thead>
<tr>
<th>Metric</th>
<th>2030</th>
<th>2050</th>
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<tbody>
<tr>
<td>GHG Emissions (MMT)</td>
<td>8.1</td>
<td>2.2</td>
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<tr>
<td>Effective CES (%)</td>
<td>75%</td>
<td>101%</td>
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Energy Balance (GWh)

Emissions (MMT CO2e)

*The emissions from new firm resources are estimated based on the emissions from equivalent gas plants.

Source: CO GHG Roadmap Scenarios Presentation to AQCC (E3 – June 2020)
THE VISION

“Governor Polis ran on a bold platform of achieving 100% Renewable Energy by 2040. This goal is motivated by the moral imperative to fight climate change and curb pollution of our air and water, as well as the opportunity to drive innovation and harness the consumer savings and economic benefits of leading the transition to a clean energy economy. This is our roadmap to achieve this goal.”