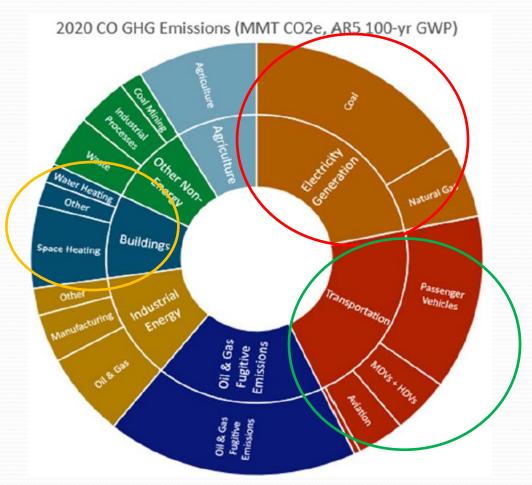
Climate and Energy Update 2021

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GHG Emissions



Source: Colorado Energy Office CO GHG Pollution Reduction Roadmap Report, Jan. 14, 2021

Climate Change and Energy

- Energy = biggest contributor to GHG emissions directly and indirectly
- Requires more energy;
- Requires green capital;
- Can't be done fast enough, though most of it has not been done before.
- Raft of legislation in 2019 and 2020 in Colorado
- Actions across regulatory agencies

JOEL PETT USA TODAY



Federal vs. State Authority

- Federal Energy Regulatory Commission
 - Wholesale rates and sales
 - Wholesale transmission and power markets
 - Hydropower licensing and Natural gas pipelines
- Colorado Public Utilities Commission
 - Retail rates
 - Generation and transmission
- Federal legislation could address key areas:
 - Clean Energy Plan = a floor; implemented by states
 - Production Tax Credit and Investment Tax Credit

Energy Legislation - PUC

- Statewide Carbon HB 19-1261 (AQCC)
- Utility Scale Generation SB 19 -236
 - CEP (Public Service; Black Hills; Tri-State?)
 - DSP distribution system planning
 - Wholesale cooperative ERP
 - Workforce transition
- **EVs** SB 19 -077 (TEP)
- Distribution Scale Generation
 - HB 19 1003 (CSG)
 - SB 21 261 (expand application of on-site solar to off-site)
- Environmental justice
 - SB 20 − 30
 - HB 21- 1105 (disproportionately impacted communities / SBC)
- **Demand Side Management** SB 21-246 (BE); HB21-1238 (gas)
- Markets -
 - SB 19 -236 CTCA new reason for being
 - SB 21-72 Market by 2030 and CETA

CEP Implementation

- 80% reduction of CO2 emissions from 2005 levels by 2030; 100% by 2040 is 'sought' for future plans
- Statutory Requirements for CEP "safe harbor"
 - 2021 ERP must get through 2030 planning
 - Must be concurrent with Electric Resource Plan
 - Must use competitive resource acquisition process, however up to 50% ownership by utility allowed
 - Rate impact cap of 1.5% to total annual bill
 - Transmission component
 - Workforce component



Colorado Public Utilities Commission

- Rulemakings on resource acquisition began in 2017
- 19R-0096E: Withdrawn 2021 as to ERP/CEP/PURPA
 - Deferral to utilities on Clean Energy Plans
 - FERC Order 872 on competition for qualifying facilities
- Rulemakings: DSP; Income Qualified ratepayers;
 Gas Strategic Issues; Renewable Energy Standard
- Market development



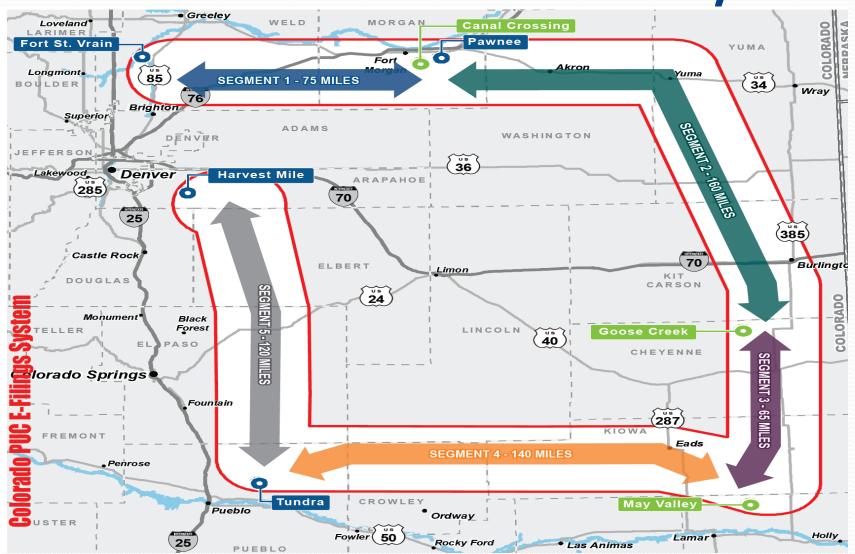
Public Service Company of Colorado

- Approximately 65% of Colorado's electric load
- Clean Energy Plan combined with Electric Resource Plan
 - Phase I underway, Phase II next year
- Builds on prior retirements
 - Started in 2007
 - Clean Air Clean Jobs 2010 (900 MW)
 - 2018 Colorado Energy Plan CEP I Retirement of Comanche 1 and 2 (660 M\

Public Service CEP Proposal

- Craig 2 will retire in 2028, Hayden 1 will retire in 2028, and Hayden 2 will retire in 2027
- Comanche 3 at reduced (33%) capacity
- Convert Pawnee station to natural gas
- Add 4,500 +/- MW of new or repowered generation:
 - 2,300 MW of wind
 - 1,600 MW of large-scale solar
 - 400 MW of battery storage
 - 1,300 MW of flexible dispatchable generation
 - Additional 1,100 MW DER

Colorado Power Pathway



Key issues for CEP Dos

- Modeling
 - "Reasonable Cost and Impact"
 - Recovery of investments/Incentives
 - Reliability and safety
 - Resource need now a preferred generation mix
- Comanche 3
 - Operate less, or seasonally, or not at all
- Hayden-- Innovative Tech; Workforce/Coal communities
- Hydrogen- 30%



Tri-State Generation and Transmission Association

- HB 19-1261 or 19-236
- Responsible Energy Plan/transmission plan
- Exit stage left?
- Regulatory Authority
 - FERC
 - First Electric Resource Plan with regulator scrutiny



Colorado Springs Utilities and Platte River Power Authority

- ERPs not regulated by COPUC, rather by City Councils
- Subject to HB 19 -1261
- CSU
 - 80% CO2 reduction from 2005 levels by 2030, and retires the Drake, Nixon 1, and Birdsall coal units by 2035, with non-carbon replacement generation first online by 2030

PRPA

- Zero coal portfolio 100 MW of wind and battery storage in 2029, retirement of Rawhide coal unit,
- reciprocating gas engines
- Black Hills opting in to CEP



Climate Justice

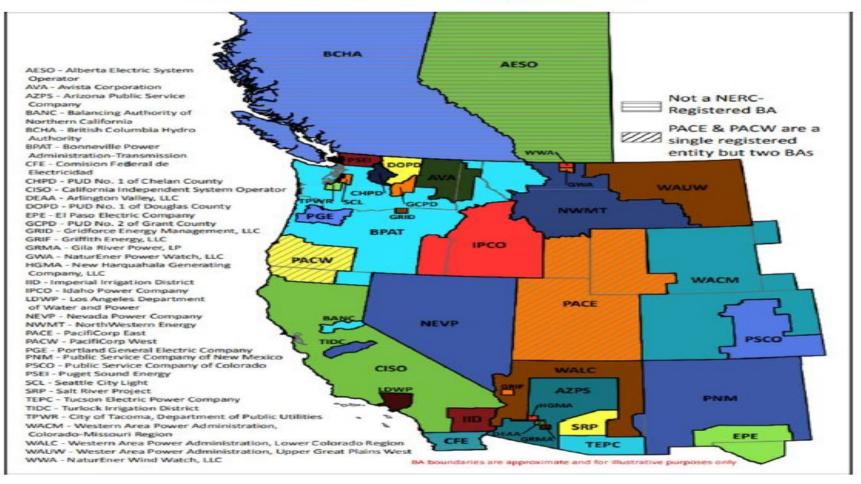
- Climate Justice fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. (US EPA)
 - Equality and Pollution
 - Rural Communities Jobs and Tax Base
 - Workforce Transition from fossil fuels
 - Equality and Rates
 - RES/DSM

Role of Markets

- Transmission Coordination Act (2019)
- Transmission market requirement (2020)
- SB-72
- Brattle Reports
- Colorado currently being pulled part electrically speaking



Exhibit 218: WECC Balancing Authorities⁶³





thoughts for consideration

- Energy is good news for Colorado climate policy
 - Question is exportability
 - Watch the islands for 100% and batteries and EVs
- 2025 2027 An investment boom and a construction cluster
- Resource extraction based communities
- Market development will change how Colorado manages its electric grid



Questions

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