



**Utilities Policy Advisory Committee (UPAC)  
Wednesday, September 4, 2024, 8:00 a.m. – 10:00 a.m.**

Rosemont Conference Room,  
121 S. Tejon Plaza of the Rockies or Microsoft Teams  
[Click here to join the meeting](#)

<b>8:00 a.m.</b>	<b>1. Call to Order</b>	
<b>8:05 a.m.</b>	<b>2. Approval of August 7, 2024 UPAC Meeting Minutes</b>	Decision
<b>8:10 a.m.</b>	<b>3. Colorado Energy Office</b>	Discussion
<b>9:20 a.m.</b>	<b>4. American Public Power Association</b>	Discussion
<b>10:40 a.m.</b>	<b>5. Citizen Comment</b> Citizens can provide comment in person, by joining the meeting from computer or by phone using the link above. If you would like to speak during the citizen comment period, please sign up to speak through <a href="mailto:BoardSubmissions@csu.org">BoardSubmissions@csu.org</a> prior to the meeting.	Discussion
<b>10:40 a.m.</b>	<b>6. Committee Member General Discussion</b>	
<b>11:00 a.m.</b>	<b>7. Adjournment</b>	

Next meeting: October 2, 2024

Note: UPAC Bylaws, Rule 6: Customer and Public Comment: (b) At the discretion of the Chair, or the majority of the Committee Members present, customers and members of the public will be allowed to comment or ask questions concerning items discussed at regular meetings or concerning matters discussed at special meetings. Comments or questions by individuals will be limited to five minutes each, and all customer or public comments will not exceed twenty minutes on any agenda item unless time is extended by the Chair or majority of the Committee Members present.



**Minutes**  
**Utilities Policy Advisory Committee (UPAC)**  
**Wednesday, Aug. 7, 2024**  
**Blue River Boardroom, 5<sup>th</sup> floor, 121 S. Tejon St., Colorado Springs, CO**  
**and Microsoft Teams Virtual Meeting**

**Committee members present in the Boardroom or via Microsoft Teams:**

Chair Larry Barrett, Scott Smith, Michael Borden, David Watson, Katherine Danner and Chris Meyer

**Committee members excused:**

Gary Burghart

**Staff members present in the Boardroom or via Microsoft Teams:**

Travas Deal, Al Wells, Marcela Espinoza, Bethany Schoemer, Natalie Watts, Lisa Barbato, David Longrie, Jay Anderson, Renee Adams, Joe Awad, Leslie Smith, Gabe Caunt, David Padgett, and Matt Dudden

**Utilities Board members present in the Boardroom or via Microsoft Teams:**

Chair Dave Donelson

**City of Colorado Springs staff present in the Boardroom or via Microsoft Teams:**

David Beckett

**Citizens present in the Boardroom or via Microsoft Teams:**

Tom Carter and Albert Badeau

**1. Call to Order**

Chair Larry Barrett called the meeting to order at 8:02 a.m. and called the roll.

**2. Approval of July 3, 2024, UPAC Meeting Minutes**

Committee Member Scott Smith made a motion to approve the July 3, 2024, meeting minutes and Committee Member Katherine Danner seconded the motion. The motion passed unanimously.

**3. Colorado Springs Utilities: Nuclear Technology Assessment**

Mr. David Longrie, Manager of Energy Resource Planning and Innovation, started by providing an explanation of his team's responsibilities and explained their main task is energy resource planning of electric and gas. He explained the nuclear technology assessment and how Springs Utilities fits nuclear into their Electric Integrated Resource Plan. Mr. Longrie indicated that currently state legislation excludes nuclear energy as a renewable energy source.

Electric peak usage from 2015-2025 was reviewed. Mr. Longrie stated that Springs Utilities will integrate an additional 200 megawatts (MW) starting in 2025 to account for the large population growth in Colorado Springs. Chair Barrett asked if Springs Utilities has seen growth with server farms in the area. Mr. Longrie responded that the community is seeing the growth of data centers coming into the community, which is causing greater demand.

Committee Member Danner inquired about the generation capacity verses the load in the community. Mr. Longrie advised the system is made to generate 16-20% more energy than the load.

Mr. Longrie discussed the goal is to reduce 2005 carbon emissions by 80% by 2030. With the closure of the Martin Drake Power Plant and the future closing of the Nixon Power Plant, Springs Utilities will reach its goal of lowering emissions by 80%. However, he explained Springs Utilities will likely face challenges meeting higher energy loads as the population continues to grow.

Committee Member Chris Meyer asked what would happen if Springs Utilities does not meet the state's requirement of lowering emissions. Mr. Longrie stated if goals are not met, Springs Utilities will need to submit another plan to the state and advise how it will fulfill the carbon emission targets.

There was discussion on the outsourcing and transmission of power in future planning of Springs Utilities. Mr. Longrie indicated nuclear energy is not accounted for until 2040 for Springs Utilities and its estimated planning and building would take 15 years.

Mr. Travas Deal, Chief Executive Officer, discussed energy planning as it relates to military installations and how Springs Utilities supports these efforts. He also discussed the many challenges Springs Utilities faces with meeting various state mandates.

#### **4. UPAC Assignment Timeline and Action Planning**

Ms. Bethany Schoemer, Strategic Planning and Governance Specialist Senior, discussed the timeline from Sept. 4, 2024, to March 2025. Staff has reached out to various contacts and they will be attending future UPAC meetings throughout the assignment. Ms. Schoemer highlighted the committee will need to begin their recommendation discussion at the January UPAC meeting to be able to meet the deadline of March 2025.

Chair Barrett advised he will be absent from the October meeting, but Committee Member Gary Burghart will serve as Chair.

Committee Member Meyer asked for clarification on whether Springs Utilities' staff would be organizing future meetings with other companies. Ms. Schoemer replied by saying if UPAC members have someone in mind they would like to come speak, to reach out to her directly to organize the communication.

## **5. UPAC Member Research**

Chair Barrett presented his research findings on the state of nuclear technology throughout the United States. He discussed small modular reactors and their development that is underway in 19 countries. He discussed the safety, environmental and water disposal considerations that come with small modular reactors as well as the economics behind them. Chair Barrett provided an overview on United States Nuclear Regulatory Commission's licensing and permitting requirements and the roles of other agencies. He concluded by providing a list of all the energy companies located in Colorado and stated a \$900 million grant for small modular reactors was announced in early 2024 by the Department of Energy.

## **6. Citizen Comment**

Mr. Tom Carter, citizen, discussed large artificial intelligence data centers, water utilization and cooling structures. Chair Barrett thanked Mr. Carter for his comments and stated he is looking forward to him attending the Sept. 4 meeting and beginning his tenure as an alternate UPAC member.

Mr. Albert Badeau, citizen, expressed his interest in the assignment scope and that he looks forward to serving on UPAC as an alternate member beginning next month.

## **7. Committee Member General Discussion**

Chair Barrett welcomed the two new alternate members of UPAC, Mr. Tom Carter and Mr. Albert Badeau. He said they were selected out of the 10 applicants that had applied and their appointments will be going to the Utilities Board on Aug. 21 for approval.

The committee discussed the magnitude of the Palo Verde Power Plant in Arizona and how much energy it produces.

Chair Barrett recognized Ms. Lisa Barbato, Chief System Planning and Projects Officer, and thanked her for attending the meeting.

Ms. Schoemer reminded the committee that next month's meeting will take place in the Rosemont Conference Room due to technology upgrades happening in the Blue River Board Room.

## **8. Adjournment**

Chair Barrett adjourned the meeting at 9:50 a.m.

**Next meeting:** Sept. 4, 2024, at 8:00 a.m. in the Rosemont Conference Room

# Pathways to Deep Decarbonization in Colorado's Electric Sector by 2040

Presentation by the Colorado Energy Office  
September 2024



# CEO Mission & Vision

## Mission

*Reduce greenhouse gas emissions and consumer energy costs by advancing clean energy, energy efficiency and zero emission vehicles to benefit all Coloradans.*

## Vision

*A prosperous, clean energy future for Colorado.*

# House Bill 12-1247

(3) (a) THE DIRECTOR SHALL CONDUCT OR CAUSE TO BE CONDUCTED STUDIES OF ELECTRIC TRANSMISSION AND ADVANCED ENERGY SOLUTIONS TECHNOLOGIES, INCLUDING GEOTHERMAL, CLEAN HYDROGEN, **ADVANCED NUCLEAR**, WIND AND SOLAR COUPLED WITH STORAGE, AND LONG DURATION STORAGE. ONE STUDY MUST FOCUS ON NORTHWESTERN AND WEST END OF MONTROSE COUNTY COLORADO, AS SPECIFIED IN SUBSECTION (3)(b) OF THIS SECTION, AND ONE STUDY MUST FOCUS ON SOUTHEASTERN COLORADO, AS SPECIFIED IN SUBSECTION (3)(c) OF THIS SECTION.

# 2040 Deep Decarbonization Study

The background of the slide is a stylized illustration of a sustainable landscape. On the left, there are several white wind turbines. In the foreground, a light blue river flows through a green field. On the right side, there are rows of blue solar panels. The sky is light blue with soft, white clouds. The overall aesthetic is clean and modern, representing clean energy and environmental friendliness.

Explore pathways for Colorado to achieve zero in-state carbon emissions from the electric sector by 2040 and determine the costs, resource additions, GHG emissions, and potential jobs impacts from each scenario.



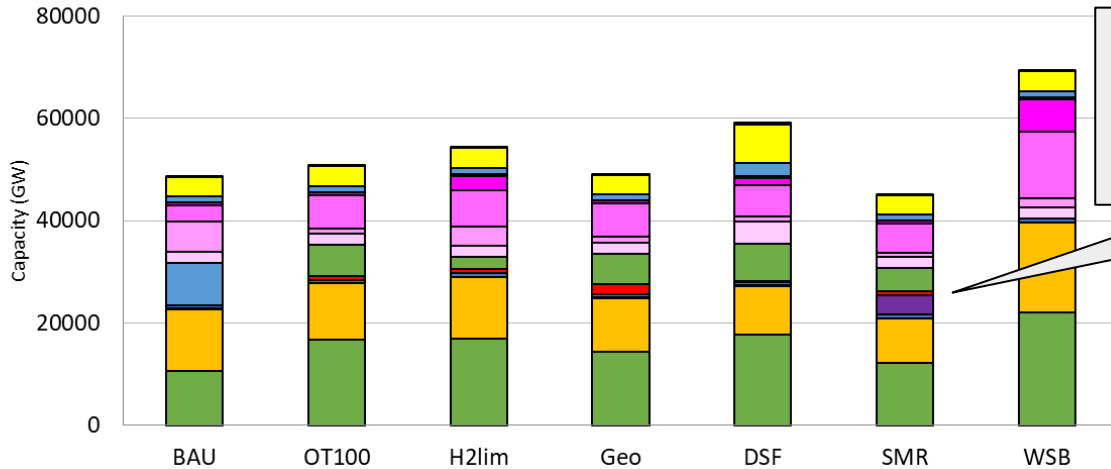
# 2040 Energy Study Scenarios

<b>Economic Deployment</b>	Baseline, “business as usual” scenario based on current state policies and resource trajectories. Model can select gas, wind, solar, and battery storage for capacity expansion.
<b>Optimized 100% Clean (OT100)</b>	Technology neutral, economic development that results in the least-cost scenario to achieve 100% carbon-free, in-state electric system by 2040.
<b>Wind, Solar, Batteries Only (WSB)</b>	Only wind, solar PV, and battery resources can be selected to meet resource needs.
<b>Accelerated Geothermal (Geo)</b>	Geothermal technology development is boosted in Colorado to achieve a minimum of 2 GW of capacity by 2040.
<b>Demand-Side Focus (DSF)</b>	A high-electrification scenario that focuses on distributed energy resources. Includes double the level of demand response, energy efficiency, building electrification, vehicle to grid, and distributed energy resource build-outs as the other scenarios.
<b>Small Modular Nuclear Reactors (SMR)</b>	Small modular nuclear reactor (SMR) technology is boosted in Colorado, deploying two 320 MW reactors each year from 2035-2040, spread across the state. The model selects additional resources on an economical basis, if required, to meet net-zero 2040 goals.
<b>Hydrogen Limited (H2Lim)</b>	Explores alternatives to hydrogen for clean firm generation. Hydrogen development is limited to 2,400 MW by 2040.



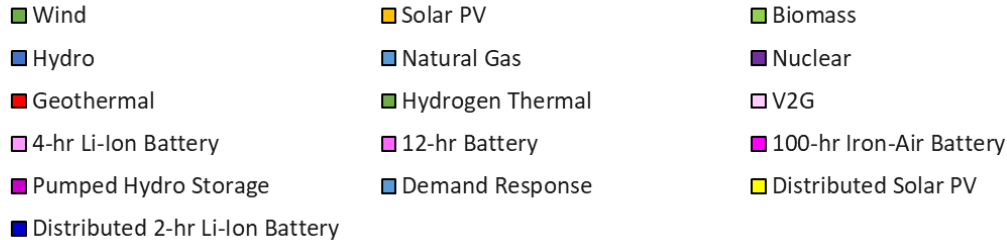
# Updating Clean Energy Planning in Colorado

2040 Installed Capacity

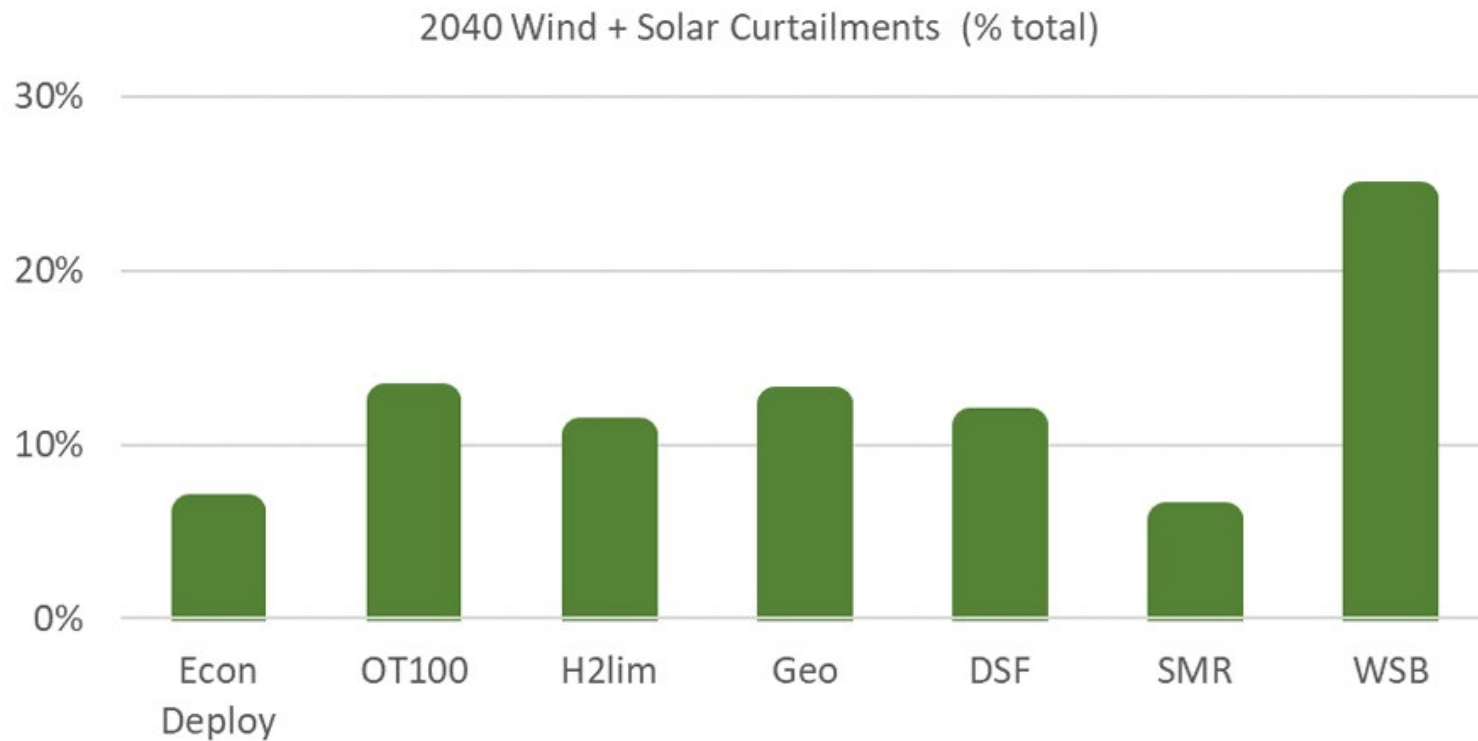


3,840 MW of new SMR capacity.

No other scenario has any SMR capacity



# Curtailment

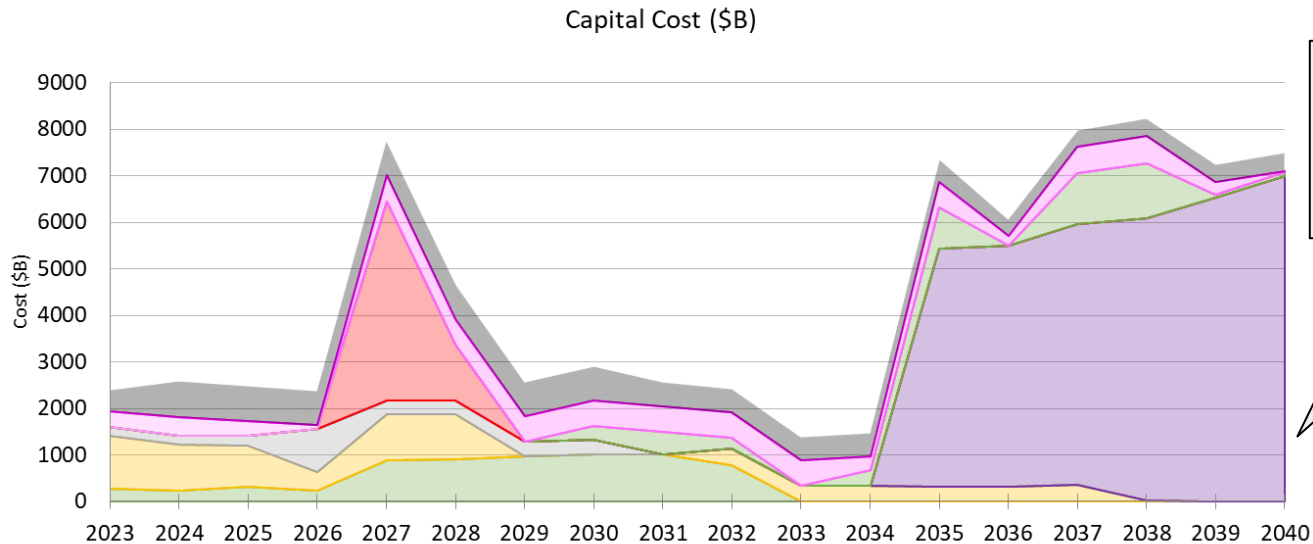


# Reliability

- All scenarios achieve <2.4 hours of outage each year, including support from up to 1,500 MW of import capacity during peak demand events.
- Scenarios requiring less import capacity exhibit higher levels of reliability.
  - Most scenarios require <500 MW import capacity during peak events, indicating strong, self-supplied reliability.
- During peak demand events, model limits import capacity to 1,500 MW from external market to account for reduced availability during widespread weather events.
  - The model assumes 4,150 MW of import capacity during normal conditions, reflecting planned transmission upgrades.
- WSB exhibits significant reliability concerns, leaning heavily on import capacity even with significant in-state resources.

Scenario	Import Capacity required for 2.4 LOLH (MW) (smaller is better)
Econ Deploy	289
OT100	324
H2lim	1120
WSB	1495
Geo	377
DSF	459
SMR	0

# Capital Costs



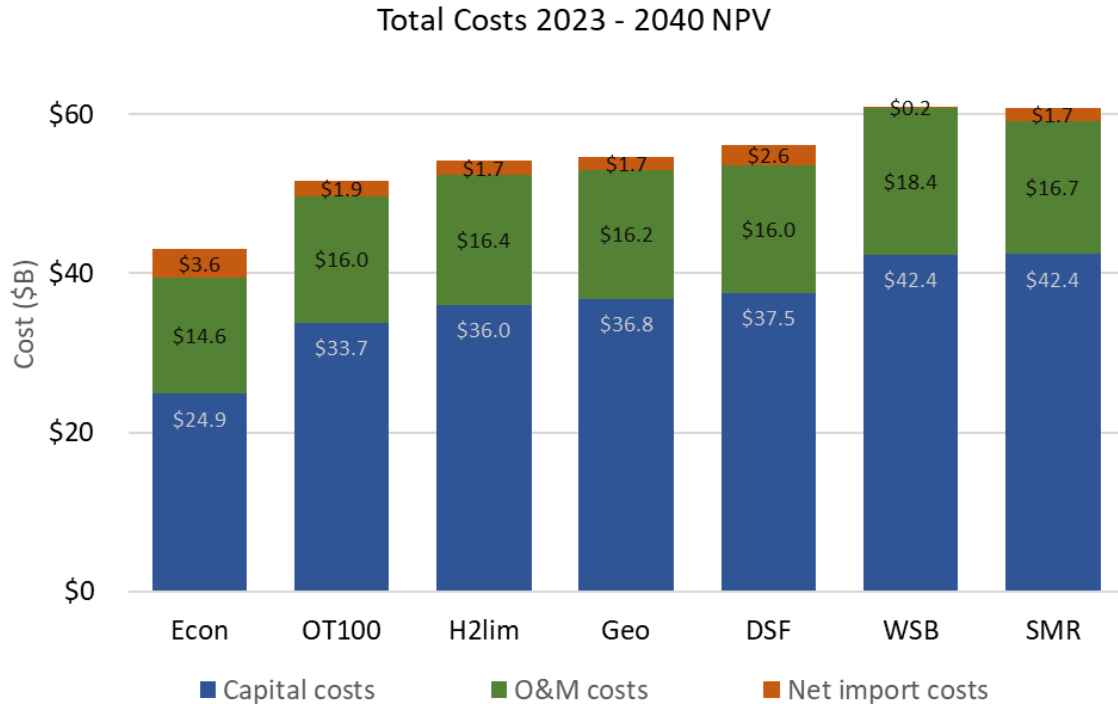
The total capital cost of SMRs is \$35 billion starting in 2035.

- Wind
- Solar PV
- Natural Gas
- Nuclear
- Geothermal
- Hydrogen Thermal
- 4-hr Li-Ion Battery
- 12-hr Battery
- Pumped Hydro Storage
- Demand Response
- Energy Efficiency
- Beneficial Electrification
- Distributed Solar PV
- Distributed 2-hr Li-Ion Battery

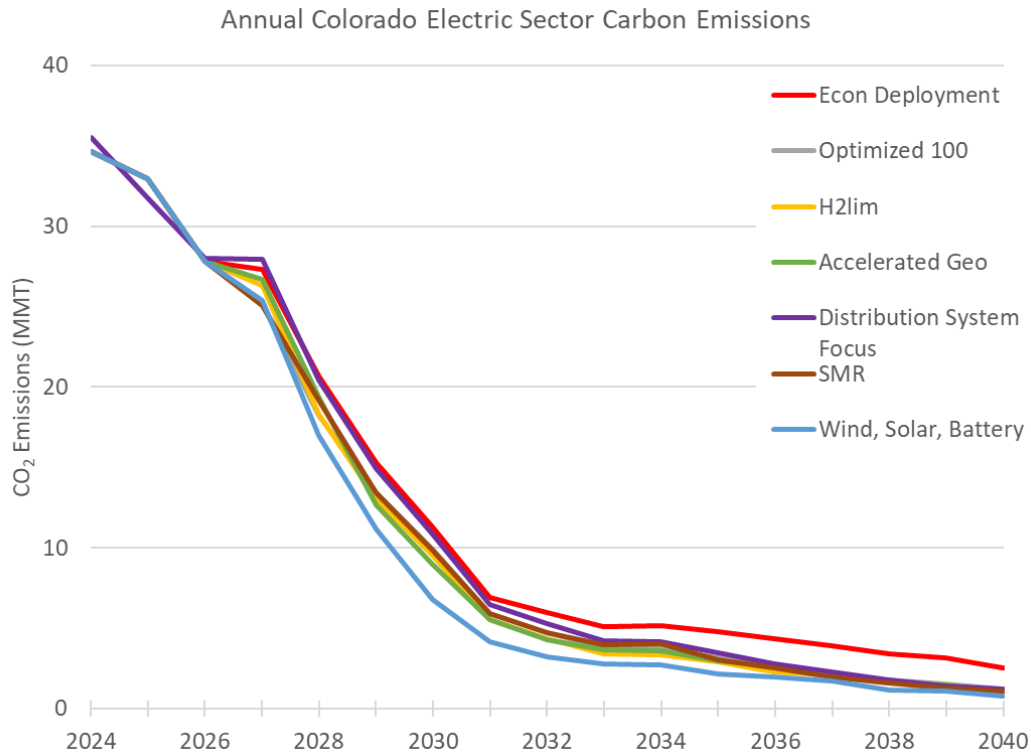


# Scenario Costs

- **Economic Deployment:** lowest overall in costs, primarily due to retaining some existing gas capacity and avoiding capital costs from replacing it.
- **Optimized 100:** 20% higher net cost than EconDeploy, but achieves 100% clean in-state electricity without any remaining fossil fuel resources.
- **Hydrogen Limited and Geo:** slightly higher cost than OT100 due to replacement of hydrogen with alternative, higher cost clean firm resources.
- **Distribution Focused:** increased electrification cost and increased peak demand drive higher costs. Potential additional distribution side costs not captured in this model.
- **Wind, Solar, and Battery:** the most expensive scenario due to the very high capacity of renewables and storage required to ensure reliability.



# Key Takeaways - Many Paths to Deep Emissions Reductions



- The Economic Deployment, or business as usual, scenario results in roughly a 97% reduction in in-state carbon emissions by 2040 at no incremental cost.
- Transitioning to a 100% clean energy grid by 2040 adds at least +20% to the cost (roughly \$8.5 billion).
- Firm generation remains critical for grid reliability but is expected to run very infrequently, with annual capacity factors of 2% in 2040, running primarily during periods of peak demand.
- Econ Dep scenario adds 5.5 GW wind, 11 GW solar, and 9 GW storage, compared to 2022 levels of 5 GW wind, 2 GW solar, and 0.5 GW of storage.
- A least-cost, carbon-free future requires additions of 11.5 GW wind, 10 GW solar, 7.5 GW storage, and replacement of all fossil fuel resources with 6 GW of green hydrogen generators and 800 MW of geothermal.
- In the least-cost pathway to achieving 100% emissions reduction, clean firm generation is expected to comprise 30% of reliable capacity, with storage providing an additional 40%.

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# Congressional and Nuclear Policy Update

**Sam Owen**

**Government Relations Director  
American Public Power Association**

September 4, 2024

# A Little About APPA and Myself

- Voice of not-for-profit, community-owned utilities
- Serving 54 million people in 2,000 cities and towns
- 49 states and every territory
  
- With APPA since March
- Covering nuclear, hydropower, and FAA/drone policy
- Former Capitol Hill staffer with Senator Enzi (WY) and the Environment and Public Works Committee

# Public Power and Nuclear Energy

- Public power utilities generated nearly **18 percent** of their electricity from nuclear power.
- Both own and operate nuclear reactors outright, or partner with other utilities to co-own a facility.
- Also receive power from nuclear power plants through bilateral contracts, indirectly through electricity markets, or by purchasing power generated by organizations like the Tennessee Valley Authority (TVA).

# APPA and Nuclear Energy Policy

- APPA supports the continued use of nuclear power, a key source of baseload, emissions-free electricity.
- We believe federal policies should continue to facilitate the construction of new nuclear facilities and further the development of advanced nuclear technologies, including small modular reactors (SMRs).
- We support the construction of a consolidated interim storage facility in a willing host community and the construction of a final repository for nuclear waste, including, but not limited to, Yucca Mountain.

# Current Congressional & Political Landscape

## Slim Majorities

**House:** 220 Republicans / 211 Democrats (4 vacant seats)

**Senate:** 50 Democrats (includes 4 independents; 1 vacant seat) / 49 Republicans

## Retirements/Running for Higher Office

**Energy & Commerce Committee:** Cathy McMorris Rodgers (R-WA), Jeff Duncan (R-SC), Bill Johnson (R-OH), Larry Bucshon (R-IN), Michael Burgess (R-TX), Greg Pence (R-IN), Kelly Armstrong (R-ND) Debbie Lesko (R-AZ), Anna Eshoo (D-CA), Tony Cardenas (D-CA), John Sarbanes (D-MD), John Curtis (R-UT), Lisa Blunt-Rochester (D-DE)

**Senate Energy Committee:** Joe Manchin (I-WV)

**Senate Environment & Public Works Committee:** Tom Carper (D-DE), Ben Cardin (D-MD), Debbie Stabenow (D-MI)

# Major Nuclear Energy Policy in Congress

- **Inflation Reduction Act (2022)**

- New production tax credit (PTC) for electricity from existing nuclear.
  - Nuclear PTC (45U) includes “elective pay,” a refundable credit for tax-exempt entities.
  - APPA is engaging with Treasury to provide clarity on 45U’s definition of “gross receipts” to ensure that public power utilities can qualify for the 45U tax credit.
- Nuclear energy also qualifies for the 45Y clean production credit and 48E clean electricity investment credit, and can claim elective pay.

- **Atomic Energy Advancement Act (H.R. 6544)**

- NRC reforms to expedite the approval process for nuclear projects.
- Extend the Price-Anderson Act, limiting the financial liability of nuclear facilities, by 40 years.
- Passed House, not Senate.

# Major Nuclear Energy Policy in Congress (cont.)

- **Accelerating Deployment of Versatile Advanced Nuclear for Clean Energy (ADVANCE) Act**
  - Intended to modernize NRC regulatory frameworks and spur the deployment of advanced reactors.
  - Conferenced version of Senate-passed ADVANCE Act and Atomic Energy Advancement Act.
  - Directs the NRC to:
    - Develop guidance to license and regulate micro-reactors;
    - Report to Congress on advanced manufacturing and construction of nuclear energy projects; and
    - Modernize its environmental review process.
  - Signed by President Biden on July 9, 2024.

# Elsewhere in Congress

- **Energy and Water Appropriations Bills**
  - Pulled at the last minute in House. House bill included \$9 billion for advanced nuclear programs.
  - Senate energy and water appropriations bill includes \$800 million reprogrammed from the Civil Nuclear Credit Program.
- **International Nuclear Energy Act (S. 826/H.R. 2938)**
  - Directs the executive branch to take a more active role in helping to export nuclear technologies from the U.S.
  - Attempts to remedy the U.S. losing ground, particularly to counter Russia and China.



# Permitting Reform

- **Energy Permitting Reform Act of 2024 (S. 4753).**
  - Introduced by Senators Joe Manchin (I-WV) and John Barrasso (R-WY).
    - Permitting reform is a major goal of Senator Manchin. With his upcoming retirement at the end of the current Congress, he will be very focused on getting this bill signed into law.
  - The bill would shorten judicial review timelines:
    - Set a 150-day statute of limitations from the date of the final agency action on a project;
    - Mandate that courts expedite their review of legal challenges; and
    - Set 180-day deadline for federal agencies to act on remanded authorizations.
  - Electric Reliability: Would require FERC and NERC to assess future federal regulations significantly affecting power plants and offer formal comments to federal agencies about any effects on electric reliability.
  - Time is quickly running out for Congress to consider and pass S. 4753.



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Powering Strong Communities

# Questions?

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