



CASE STUDY: Transition to Clean Energy for Cooperative Utilities

Tri-State's Responsible Energy Plan

Between 2018 and 2020, one of the largest power suppliers in the West planned for and unveiled a new pathway toward a renewably powered future. When Tri-State Generation & Transmission Association embarked on this process over two years ago, the co-op faced criticism from external stakeholders as well as its member distribution co-ops for its continued reliance on legacy fossil-fueled generation. By the start of 2020, Tri-State had a plan in place for retiring coal assets, slashing emissions, and adding over 1 GW of new renewables to its portfolio. The case study that follows, independently authored by Rocky Mountain Institute (RMI) and supported by interviews with Tri-State staff, provides perspective into that shift.

Tri-State's Responsible Energy Plan, Announced January 15, 2020

EXHIBIT 1

Tri-State Responsible Energy Plan by the Numbers

New coal capacity retirements by 2030*	904 MW
Planned renewable capacity additions	1,019 MW
Escalante community reinvestment fund	\$5 million
2040 clean energy target for Colorado	100%

*In the Responsible Energy Plan (REP), Tri-State announced retirement dates for Escalante and Craig Units 2 and 3. Additionally, Tri-State retired the 100 MW Nucla Generating Station at the end of 2019. The coal capacity retirements counted above reflect the full nameplate capacities of Escalante and Nucla, and Tri-State's share of Craig Units 2 and 3 (Tri-State has a 24 percent share in Unit 2 and a 100 percent share in Unit 3).

PART I

Responsible Energy Plan Origins and Process

Spanning 250,000 square miles and four western states, Tri-State Generation & Transmission Association (TSGT) provides power and transmission services to 43 distribution co-op members that serve over 1 million end-use customers. Tri-State territory is diverse, encompassing different load profiles, member priorities, and policy contexts in rural communities across Colorado, New Mexico, Wyoming, and Nebraska. Established in 1952 to harness economies of scale that might otherwise elude small, rural electric cooperatives, Tri-State owns over 5,500 miles of transmission and 3,000 MW of generation assets.¹

Historically, that power was mostly coal-fired, derived from a fleet of five coal-burning power plants constructed between 1959 and 2006.² Today, bilateral and market purchases as well as changing economics are steering Tri-State toward a more diversified mix of fossil and renewable resources, and its recently released [Responsible Energy Plan](#) (REP) accelerates that trend.

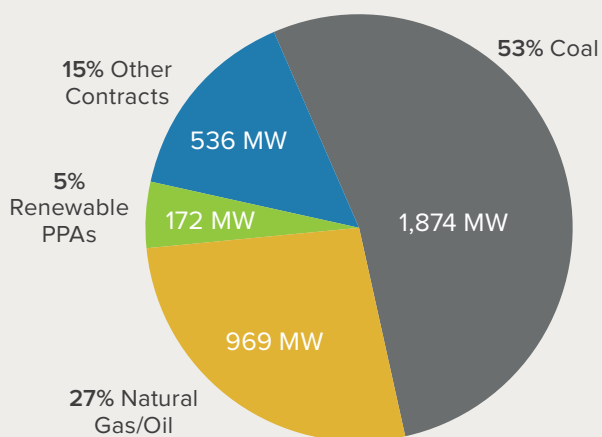
Released in January 2020, the Responsible Energy Plan (REP) includes specific actions to retire coal capacity and increase clean energy generation. Specifically, the REP calls for the retirement of the 253 MW Escalante Station in New Mexico by the end of 2020 and all three units of the 1,285 MW Craig Station in Colorado by 2030. On the renewables side, Tri-State plans to bring more than 1,000 MW of new wind and solar online by 2024, with eight projects in the works across Colorado and New Mexico.

As a result of this generation shift, Tri-State expects to reduce emissions from its Colorado wholesale electric sales 70 percent by 2030, in line with state carbon regulations. The plan is also likely to have a substantial positive impact on regional economic development, including job creation and local investment dollars: numerous economic development studies have concluded that wind and solar development create significant direct, indirect, and induced jobs in host communities and beyond (UC-Berkeley, [NREL](#), [DOE](#), etc.). For comparison, Xcel Energy's [Colorado Energy Plan](#), which includes roughly 1,800 MW of new renewable energy, is projected to result in nearly 2,000 jobs and \$2.5 billion in local investments.

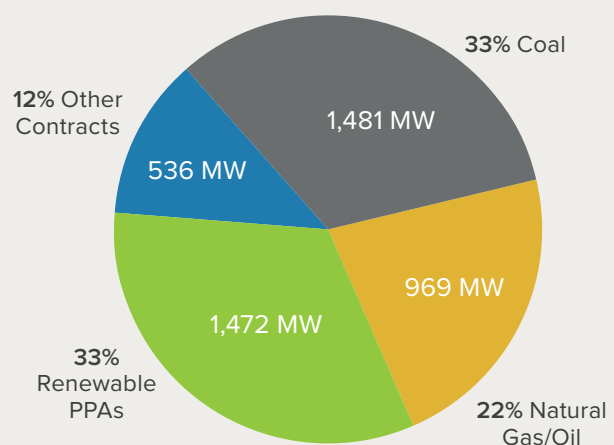
EXHIBIT 2

Tri-State's Evolving Power Mix

Tri-State's Power Supply (MW), 2014



Tri-State's Power Supply (MW), 2024



In developing the REP, Tri-State leaders recognized they had to go beyond announcing an aspirational goal; in order to maintain trust and good standing with their member co-ops and lenders, Tri-State felt it needed concrete targets as well as a clear plan for dealing with the debt that remains tied up in existing generation assets.³ To arrive at the specific planned retirements and new generation additions, Tri-State spent months conducting forecasts, weighing options for stranded asset management, and meeting with its board, which consists of representatives from each distribution co-op member—some of whom were supportive from the start of the process, and others who took more convincing. Ultimately, they arrived at a plan that was widely supported by the board and “ambitious but achievable,” according to Tri-State.

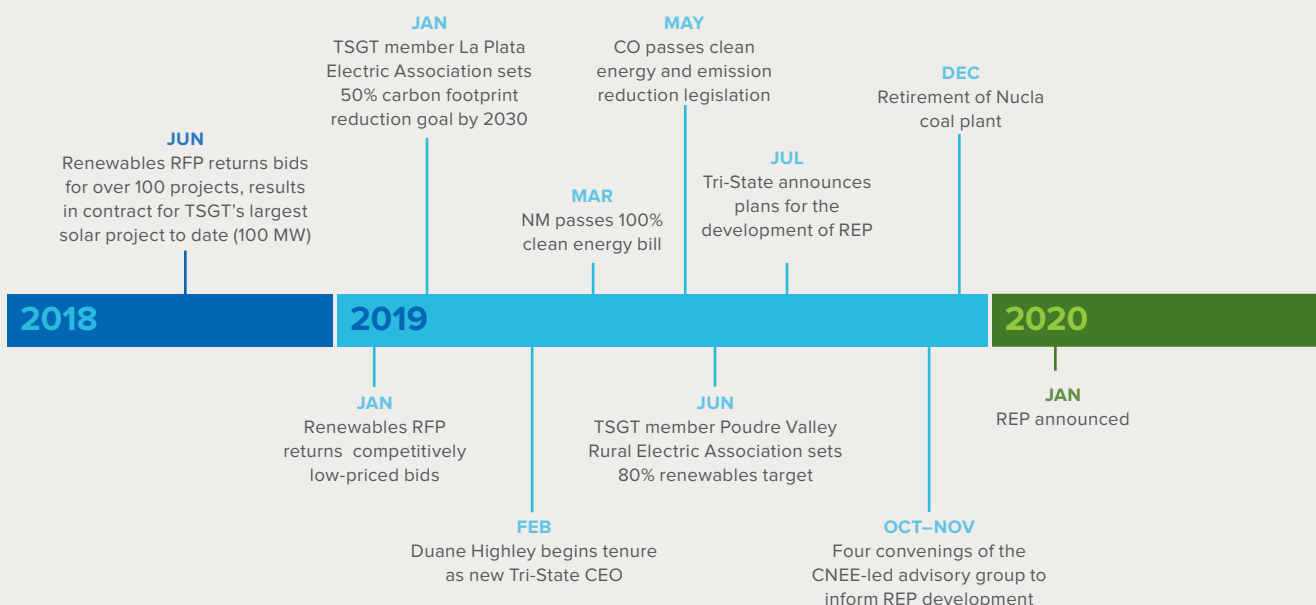
Tri-State's transition is driven by economics, policy, changing member priorities, and co-op leadership. Renewable power prices have dropped significantly in recent years, as Tri-State recognized in its recent requests for proposals (RFPs) for wind and solar projects: while a 2018 renewables RFP returned competitive prices, by January 2019, a new RFP returned bids that were “spectacular,” and substantially lower than they had been just the previous year.⁴ Those numbers helped convince reluctant board members of the REP's feasibility.

At the same time, new administrations and policy shifts in Colorado and New Mexico introduced ambitious carbon reduction targets in those two states, which Tri-State would have to accommodate in its future generation planning. Additionally, several distribution co-ops in Tri-State's system have set renewable energy targets of their own, reflecting member demands for a cleaner and more localized energy supply. In the midst of these external drivers of change, Duane Highley stepped in as the new CEO of Tri-State in 2019, the goal of transforming Tri-State into a model 21st-century generation and transmission utility cooperative (G&T).

The Responsible Energy Plan's development predated Highley's arrival, but the new CEO added momentum and external engagement to the effort. Under Highley, Tri-State convened a multi-stakeholder advisory group facilitated by Colorado State University's Center for a New Energy Economy (CNEE) and former Colorado Governor Bill Ritter. Participants hailed from all four states in Tri-State's territory and represented academic, agricultural, electric industry, environmental, and local government perspectives.⁵ The **collaborative dialogue** helped Tri-State develop the credibility and buy-in the G&T will need to fulfill its REP commitments.

EXHIBIT 3

Tri-State Responsible Energy Plan timeline



“The board set a goal for our cooperative to comply with all applicable environmental and renewable energy requirements while striving to reduce members’ rates, preserve electricity reliability and affordability, and maintain financial strength,” said Tri-State CEO Duane Highley of the motivation for the REP. “With this clear direction, staff worked with members and stakeholders to develop a plan that we believe will achieve that goal.”⁶

PART II

Plan Implementation: Transitioning the Generation Mix

Realizing the goals of the Responsible Energy Plan will dramatically transform Tri-State’s generation mix and the spread of renewable resources across its territory. By 2024, the G&T will double its renewable electricity generation and set itself on a path toward 100 percent clean energy in Colorado by 2040. Tri-State also has plans to increase the flexibility of the “all-requirements” contracts that govern the power it supplies to distribution co-op members.

While historically these contracts required distribution co-ops to procure all but 5 percent of their power from the G&T, the rise of distributed energy resources (DERs) has made many of Tri-State’s member co-ops eager to generate more of their energy locally. Depending on the specific implementation of new rules, allowing distribution co-ops to develop or procure more distribution-scale renewables and storage could pave the way for an increase in DER deployment in Tri-State territory.

At the same time, the shift away from coal will have ramifications for the communities where the plants are sited, and Tri-State is thinking hard about how to lessen the impacts to workers and the local economy. As SVP of policy and compliance Barbara Walz put it, “co-ops are a family.” Tri-State is committed to engaging with the communities near the retiring Craig and Escalante plants, as well as state government, to provide economic assistance, retraining, and new opportunities in those areas.⁷ The recent energy legislation passed in Colorado and New Mexico each provide for some form of transition support for

EXHIBIT 4

Tri-State’s Contracted Renewable Energy Projects, including REP Additions

HYDRO

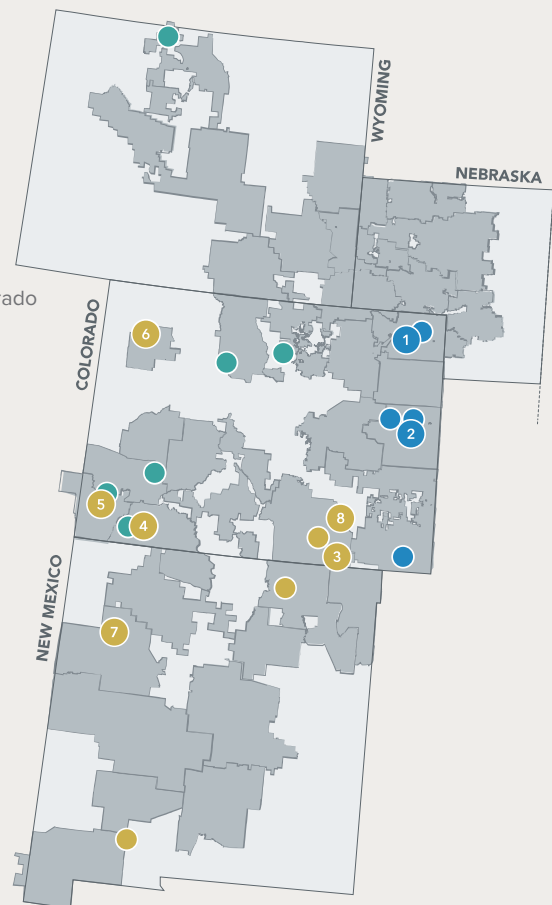
- Garland Canal Hydroelectric Project, 2.9 MW | Powell, Wyoming
- Williams Fork Hydro Plant, 3.5 MW | Parshall, Colorado
- Boulder Canyon Hydroelectric Project, 5 MW | Boulder, Colorado
- Tri-County Water Hydropower Project, 8 MW | Ridgway, Colorado
- Mancos Hydro Project on Jackson Gulch Reservoir, 260 kW | Mancos, Colorado
- Vallecito Hydroelectric Project, 5.6 MW | Durango, Colorado

WIND

- Colorado Highlands Wind, 91 MW | Fleming, Colorado
- Kit Carson Wind, 51 MW | Burlington, Colorado
- Carousel Wind, 150 MW | Burlington, Colorado
- Twin Buttes II Wind, 75 MW | Lamar, Colorado
- 1 Niyol Wind (2021), 200 MW | Logan and Washington County, CO
- 2 Crossing Trails Wind (2020), 104 MW | Seibert, Colorado

SOLAR

- San Isabel Solar, 30 MW | Trinidad, Colorado
- Cimarron Solar, 30 MW | Cimarron, New Mexico
- Alta Luna Solar, 25 MW | Deming, New Mexico
- 3 Spanish Peaks II Solar (2023), 40 MW | Las Animas, Colorado
- 4 Coyote Gulch Solar (2023), 120 MW | La Plata, Colorado
- 5 Dolores Canyon Solar (2023), 110 MW | Dolores County, Colorado
- 6 Axial Basin Solar (2023), 145 MW | Moffat County, Colorado
- 7 Escalante Solar (2023), 200 MW | McKinley County, New Mexico
- 8 Spanish Peaks Solar (2022), 100 MW | Las Animas, Colorado



communities impacted by fossil fuel retirements and Tri-State is working with state leaders to ensure that support is channeled to Craig and Escalante workers and community members.

Retiring the two coal plants before the end of their useful life also raises financial considerations. The plants' outstanding debt remains to be repaid; at the same time, one of the goals of the REP is to maintain or lower member rates. Tri-State recognizes that reduced rates are one way of supporting economic development in its territory, particularly the areas impacted by plant closures. The Tri-State board is currently reviewing its options for mitigating the financial burden of early retirement, but in all cases, the low and still-falling cost of renewables can help offset the cost burden associated with the coal retirements.

Additional challenges line the path toward a high-renewables generation mix for Tri-State. Chief among those is the lack of a full-fledged organized wholesale electricity market, or Regional Transmission Organization (RTO), in the western United States. According to dialogue with co-op staff, Tri-State views RTO participation as a vehicle for securing low-cost energy—via competitive wholesale markets—and reliability, stemming from greater connectivity with other utilities. While Tri-State is a part of the SPP Energy Imbalance Service, which provides some market benefits, the G&T's leaders see that as just a first step toward realizing the full cost savings and other benefits of joining an RTO. Tri-State will continue to review all options as the current energy imbalance markets in the West evolve.⁸

Transmission development looms as another potential stumbling block. New renewable energy projects often require transmission upgrades or new lines to carry the power from rural areas to load centers. Tri-State estimates that building new transmission is currently an 8–12-year process, fraught with siting and permitting issues, local opposition, and significant expense. What's more, as an increasing number of new renewables projects come online, the siting and permitting issues associated with renewable energy development could also increase.

G&T leaders have flagged funding and policy fixes, such as extending renewable energy tax credits to associated transmission projects, as potential solutions for improving the process. With this and

other challenges, Tri-State noted that state and federal policy support would enable more efficient and cost-effective implementation of their REP.

All that said, Tri-State has widespread buy-in for the REP among board members, as well as the external stakeholders engaged through the advisory group. The G&T now has years of experience issuing RFPs and procuring wind and solar capacity and appears poised to build out a network of renewable power purchase agreements (PPAs) at ever-lower prices. The REP is on solid footing for delivering a higher renewables portfolio at comparable or lower rates for members, with strong upside potential given promising favorable developments in policy support, RTO development, or transmission siting.

PART III

Lessons Learned and Takeaways for Other Utilities

Tri-State's energy generation and transmission services are at a crossroads, and the G&T has recently selected a path forward—the low-carbon path. Tri-State leadership knows that many will be watching as it continues down that path, some with a skeptical eye and some with an eye toward emulation. Tri-State member co-ops, through the board and through ongoing negotiations with the G&T, will also be closely monitoring and shaping the plan's implementation. "The cooperative family is watching Tri-State and what we are doing to reduce emissions, add renewables, and provide more contract flexibility for our members," observed Highley. "While no two G&Ts are alike and each have different circumstances, Tri-State is in a position to show that such a transition can be accomplished while maintaining reliability and affordability."⁹

Takeaway #1:

A robust stakeholder engagement process builds credibility and support.

While the reaction to the Responsible Energy Plan has been very positive to date, Tri-State acknowledges that some are withholding judgement until they see the G&T walk the talk.

“Cooperatives across the country have a reputation for being supporters of coal,” Walz noted. “So, when we were setting out to develop the REP, we knew we were going to have a trust factor to overcome. That’s one of the reasons we decided to convene the advisory group with CNEE: that dialogue engaged all four states, co-ops, environmental groups, counties, agricultural groups, etc. That open discussion with stakeholders was an important part of the process.”¹⁰

Tri-State sees the CNEE advisory group as critical for building buy-in and helping the G&T overcome potential credibility issues around plan implementation. Despite the difficulty of convening and working with stakeholders who might have been critical of Tri-State in the past, the G&T ultimately found that process to be worthwhile. Tri-State Senior Manager for External Affairs Bob Frankmore said he would recommend the advisory group approach to other co-ops thinking about a similar shift in direction.¹¹

Takeaway #2:

A specific plan makes for a better roadmap than an aspirational target.

In developing the REP, Tri-State decided early on that it didn’t want to simply release an aspirational goal for a certain level of emissions reductions or clean energy generation. Mindful that releasing a target without concrete actions for achieving it might concern member co-ops and lenders, Tri-State developed the REP to be more of a roadmap than just a final destination. The clear action items around coal retirements and renewable PPAs give Tri-State and

external observers a transparent benchmark against which to measure the G&T’s progress down the path it has set for itself, and leadership is continuing to fine-tune the details underpinning each action. Additionally, flagging obstacles to successful implementation helps Tri-State and relevant policymakers—as well as other stakeholders—maintain awareness of the challenges that must be overcome as the plan progresses. Such transparency supports energy transition efforts writ large, as the shift toward a decarbonized electricity system entails systemic change that no single electricity provider can tackle on its own.

The more the co-op community sets its sights on a high-renewable, low-carbon future, the better it can fulfill the co-op principle of “cooperation among cooperatives,” with cooperatives mutually assisting each other in realizing their goals. Tri-State anticipates other co-ops following its example, and indeed, hard on the heels of its January announcement, two other G&Ts—**Hoosier Energy** in Indiana and **Dairyland Power**, headquartered in Wisconsin—announced coal retirements and renewable transitions of their own.

Tri-State’s story is the latest example of co-ops participating in the clean energy transition, but it is far from an outlier. Distribution co-ops and G&Ts across the country have set goals or are contemplating similar plans, and Tri-State’s experience demonstrates that the sooner it commits to a path, the more effectively it can then plan for and realize all of the changes and benefits that the transition entails.

Endnotes

1. *Powering Cooperatives: A Primer on Colorado's Local Cooperative Utilities and Tri-State Generation & Transmission Association*, The Center for the New Energy Economy.
<https://cnee.colostate.edu/wp-content/uploads/2019/03/Powering-Cooperatives-CNEE-Report-on-Colorado-Cooperatives-and-TriState.pdf>
2. Mark Dyson and Alex Engel, *A Low-Cost Energy Future for Western Cooperatives: Emerging Opportunities for Cooperative Electric Utilities to Pursue Clean Energy at a Cost Savings to Their Members*, Rocky Mountain Institute, 2018.
<https://info.rmi.org/low-cost-energy-futurewestern-cooperatives>
3. Interview with Tri-State SVP of policy and compliance Barbara Walz and senior manager of external affairs Bob Frankmore, Jan. 24, 2020
4. Ibid.
5. Tri-State Responsible Energy Plan, Tri-State Generation and Transmission Association, 2020.
<https://tristate.coop/sites/tristategt/files/PDF/Responsible-Energy-Plan/Tri-State-Responsible-Energy-Plan.pdf>
6. Quote from Tri-State CEO Duane Highley, March 17, 2020
7. Interview with Tri-State SVP of policy and compliance Barbara Walz and senior manager of external affairs Bob Frankmore, Jan. 24, 2020
8. Ibid.
9. Quote from Tri-State CEO Duane Highley, March 17, 2020
10. Interview with Tri-State SVP of policy and compliance Barbara Walz and senior manager of external affairs Bob Frankmore, Jan. 24, 2020
11. Ibid.

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