

Stakeholder Comment on the CETA Transmission Capacity Expansion Study

RMI

Chaz Teplin – cteplin@rmi.org; Tyler Farrell – tfarrell@rmi.org

Introduction

RMI is excited to be involved in CETA’s transmission capacity expansion study and looks forward to seeing what the CETA, Gridworks, Energy Strategies, TransCo Energy, and Montara team (“the CETA team”) develops over the next several months. In these comments, we suggest concepts that we hope the CETA team can test in its scenarios and provide suggestions for the modeling.

Scenario Development

Large new loads

As Colorado pursues economy wide decarbonization, we would encourage the CETA team to work with other entities in the state to identify potential large new loads such as sustainable aviation fuel facilities, hydrogen hubs, truck depots, or battery factories. New transmission could be essential for Colorado to meet the clean energy needs of these new industries; similarly, a lack of transmission could constrain their development. **Therefore, we believe the CETA study should evaluate how new transmission might enable Colorado to bring new, energy-intensive (and job-intensive) industries.**

Degree of Colorado’s energy autonomy

As noted below, Colorado is somewhat of an electrical island, with only 3-4 GW of transmission capacity crossing the inter-state borders. **We believe the CETA study should illuminate how increased integration to our Western neighbors to the North, West, and South or to the Southwest Power Pool’s grid would benefit Colorado.** We know that it is not possible to model such large regions with high granularity, especially over the long-time horizon of the study. But we hope that the CETA team can provide insight into the regional picture with some more “coarse” modeling.

An additional load scenario between today and 2035

From the presentations, we understand that the CETA team intends to model a single scenario representing the 2035 study year based on load forecasts from the WECC models and recent Colorado utility ERPs. **Because we believe these load projections may be conservative, we suggest that at least one scenario assumes more aggressive load growth.** Recent load growth from data centers and new manufacturing facilities (spurred in part by the Inflation Reduction Act). As summarized recently by Grid Strategies, new loads from data centers and manufacturing could grow demand beyond even what could

occur from expected electrification.¹ As noted by Grid Strategies, “in just one year, the forecast of cumulative electricity growth over the next five years increased from 2.6% to 4.7%”. In the West, Arizona Public Service’s 2028 peak load projection grew by over 10% between 2022 and 2023.

Modeling methods

Grid-enhancing technologies (GETs)

RMI published [GETting Interconnected in PJM](#) in February 2024, which demonstrates how grid-enhancing technologies (GETs) could be integrated into new generator interconnection studies and presents novel analyses applying GETs in the planning paradigm for the first time. With this successful application of GETs in planning, we find significant cost savings and sizeable new renewables deployments that can be realized. The methodology and process we outline are also transferable to the CETA transmission expansion study in both the power flow modeling and capacity expansion modeling portions of that process.

Detailed information on how GETs can be incorporated into power flow modeling is available in the report linked above. In addition, incorporating GETs into capacity expansion modeling will be a necessary but worthwhile endeavor to thoroughly assess the impact of GETs. For example, if GETs are found to be able to address overloads identified in the power flow modeling process, the modelers could return to the capacity expansion modeling and update the existing grid topology assumptions to reflect the additional capacity unlocked by GETs; the capacity expansion model and subsequent power flow modeling could then be re-run in order to assess the effect of the changes on system build-out needs and resource mix. RMI report authors and analytical partners Quanta Technologies welcome additional discussions and conversations as necessary as we are excited and willing to help others also realize the benefits of these no-regrets technologies.

Reliance on Imports

Related to our suggestion that a scenario that analyzes how an improved connection to neighboring grids could benefit Colorado, **we would appreciate more clarity on how the CETA team is planning on representing inter-state constraints and accounting for carbon intensity for imports.** The initial presentation did not describe many details on how the analysis would model the 2035 or 2045 study years. The existing inter-state constraints between Colorado and neighboring states is quite limited - roughly 1.7 GW to Wyoming, 0.7 GW to Utah, 0.7 GW to New Mexico, and 0.7 GW to Kansas.

Resilience to extreme conditions

We request that the modeling team explain how they will model extreme conditions such as winter storms, wildfire, or heat waves. Recent reports show that these “edge case” risks are likely to drive transmission’s value.² As noted by Grid Strategies, “an additional Gigawatt (GW) of transmission capacity

¹ John D. Wilson and Zach Zimmerman (Grid Strategies), “The Era of Flat Power Demand is Over”, December 2023, accessed at <https://gridstrategiesllc.com/wp-content/uploads/2023/12/National-Load-Growth-Report-2023.pdf>.

² Michael Goggin and Jesse Schneider (Grid Strategies), “The one-year anniversary of winter storm Uri”, February 13, 2022, accessed at <https://gridprogress.files.wordpress.com/2022/02/the-one-year-anniversary->

can generate more than \$100 million in consumer savings during an extreme weather event, defraying a significant share of its cost". Most notably considering a changing climate, the need to model these edge cases is crucial. In the 2021 Winter Storm Uri, Xcel Energy rate payers were burdened with a \$500 million bill from spiraling costs of natural gas.³

[of-winter-storm-uri-lessons-learned-and-the-continued-need-for-large-scale-transmission.pdf](#); Michael Goggin and Zachary Zimmerman (Grid Strategies), "The value of transmission during winter storm Elliott", February 2023, accessed at <https://acore.org/wp-content/uploads/2023/02/The-Value-of-Transmission-During-Winter-Storm-Elliott-ACORE.pdf>.

³ Mark Jaffe (The Colorado Sun), "Xcel Energy cleared to collect \$500 million from Coloradans for storm, but regulators say it can't happen again", August 31, 2022.