Platte River Power Authority Community Focus Groups Report

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CENTER FOR
PUBLIC DELIBERATION
COLORADO STATE UNIVERSITY

Key Summary of Findings

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About the Center

The Colorado State University Center for Public Deliberation (CPD) serves as an impartial resource to the northern Colorado community. Working with students trained in small group facilitation, the CPD assists local government, school boards, and community organizations by researching issues and developing useful background material, and then designs, facilitates, and reports on innovative public events. The interpretations and conclusions contained in this publication have been produced by CPD associates without the input of partner organizations to maintain impartiality. Questions and comments on this report should be directed to the author at mcarcas@colostate.edu or 970-491-5628.

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Executive Summary

What you really need to know

Working with the Platte River Power Authority (PRPA), the CSU Center for Public Deliberation (CPD) designed and ran community focus groups in March 2020 as part of the public engagement strategy for PRPA's Integrated Resource Plan process, which was focused on how PRPA should best pursue a noncarbon energy future. The CPD ran meetings in Longmont, Estes Park, and Loveland (a total of 116 attended), and then developed on online version of the process in lieu of a Fort Collins event after that event was cancelled due to COVID-19 concerns. 41 completed the online survey. This report presents insights from the data collected during the meetings and the online option.

Process overview

At the community focus groups, participants worked in small groups with trained CPD student facilitators and notetakers to react to a document that was developed by PRPA that outlined four possible portfolios concerning the shift to renewable energy. They also had the opportunity to provide written comments on worksheets and complete an end of event survey (all the data from the survey is in the appendices of this report). They also had focused discussion on how to navigate the inherent tensions between PRPA's three pillars of providing (1) **reliable**, (2) **financially sustainable**, and (3) **environmentally responsible** energy to its member communities, and then responded to three questions developed by the CPD to dig into key tensions identified in our early analysis. This report provides summaries of the discussions from these three sections of the meetings, as well as highlights several key overall themes across the discussions. In the conclusion, the CPD provides insights about next steps in this ongoing community conversation.

Key Insights from the Analysis

Some of the key summaries from the data in this report include:

- It should be noted from the beginning that the participants in these forums were more highly educated, older, and economically more well-off than the general public.
- Participants supported Portfolios 2 and 3 more than 1 and 4. The key differences between 2 and 3 involved the use of natural gas in 2 and the reliance on batteries for storage in 3. There was a robust discussion about both those issues and they will clearly continue to be key issues for discussion moving forward.
- There was considerable pushback on some of the data presented in the placemat, particularly in terms of the impact of the move to 100% noncarbon on costs and reliability. Many participants believed the move would not negatively impact either, and potentially positively impact cost.

- Many supported the idea of PRPA moving toward 100% noncarbon energy “as much as possible,” at times advocating for a middle ground between portfolios 2 and 3 and hoping for 95 to 98% renewable energy by 2030.

- Participants responded to the goal of 100% noncarbon by 2030 in some distinct ways. Some saw it as a promise that shouldn’t be broken, others as a stretch goal that should be maintained to inspire and motivate action (even if it is not ultimately reached), and others as arbitrary and problematic.

- There was strong opposition to coal and to the proposal to build a new natural gas plant. There was considerable debate on the environmental impact of natural gas compared to coal, with participants arguing both sides. Some saw the value of maintaining natural gas as a bridge fuel to be used in limited ways as a backup, and others pushed back on any natural gas at all.

- Participants sought more information about the role of developing energy markets, particularly their potential role in assisting with reliability and affordability during the shift to renewables.

- Participants strongly supported the environmental and reliability pillars, and were in comparison less supportive of the economic/affordability pillar. Many argued for the need for the environmental pillar to be elevated among the three due to the climate crisis and for public health issues and the social cost of carbon to be considered more clearly by PRPA in their analysis. Many expressed that they would be willing to pay more for renewable energy as well as support lower income residents that may need help.

Background

Just so you know how this all got started

The Center for Public Deliberation (CPD) worked with the Platte River Power Authority (PRPA), particularly Steve Roalstad, the Communications and Marketing Manager, to design the process. Roalstad collaborated with PRPA planning staff and leadership to develop the tools used by focus group participants. We began meeting in the summer of 2019 to develop how we could engage the four communities in the spring as part of PRPA's Integrated Resourced Plan process (for more info on the IRP process, visit https://www.prpa.org/irp/). PRPA ran two sets of public meetings with each of the four communities in the fall of 2018 and 2019 and commissioned surveys of both residents and business leaders. Those meetings followed a more traditional form of a presentation from PRPA and the member cities followed by audience Q&A. They had also completed a broad series of research reports on key issues related to the decision-making process. The videos from the meetings, survey results, and reports are all available on the PRPA website at this link: ttps://www.prpa.org/irp/moreinformation/.

The spring 2020 process with the CPD was thus designed to provide a different sort of engagement than the typical presentation from the front of the room followed by Q&A at a microphone. The CPD has a group of trained CSU students to support events that shift from the one at a time at the microphone form of engagement to multiple small group conversations. Deliberative processes are designed not only to capture the views of the attendees, but also to spark productive conversation between attendees as they work through the issues at hand. Similarly, reports of deliberative processes such as this one not only attempt to summarize the key themes heard during the events, but also to identify critical factual questions and better understand key differences and tensions that arose between participants' perspectives. Overall, the goal of deliberative engagement is to elevate our conversations and find ways to move conversations forward and ultimately improve decision-making. Ideally, such processes help shift discussions from unproductive adversarial processes where people talk past each other toward more collaborative processes that help us work together on difficult shared problems.

For more information on deliberative inquiry, visit https://cpd.colostate.edu/what-is-deliberation/resources/.

Process overview

The plan was to run four community focus groups, one in each city. We ran the first three – Longmont on March 4, Estes Park on March 5, and Loveland on March 11 – but then had to cancel the fourth event scheduled for Fort Collins on March 12 due to growing concern at the time regarding COVID-19. The CPD developed an online alternative to replace the process and gather additional feedback for the IRP process. That alternative was online on the evening of March 13 and was kept open until March 25. Everyone who RSVP'd to the Fort Collins event was notified, and posts were made on social media by the CPD and PRPA. We collected 41 responses to that survey.

The chart below estimates the total number that attended each forum and completed the survey (a few people from PRPA and the local utilities observed the forums, so it was difficult to get an exact count on the participants. Most but likely not all participants completed an end of event survey). Most tables had 4-6 participants plus 2 CPD students acting as facilitators and notetakers.

City	Tables	Surveys completed
Longmont	7	33
Estes Park	9	48
Loveland	7	35
Fort Collins	N/A	41

A key aspect of the process was an 11x17 two-sided document that was developed by PRPA with some assistance from the CPD (a four page letter sized version of that document is available here, other documents from the process are here). The CPD provided PRPA some templates of similar documents from past events and provided some feedback on earlier drafts. The document utilizes the National Issues Forum (NIF) framework designed to spark useful deliberation (for more info, visit http://www.nifi.org). The NIF format focuses on a central question – in this case "How should Platte River Power Authority pursue a noncarbon energy future?" – and then provides 3-4 approaches to address the question. The energy mix approaches were developed by PRPA planners based on research and data within its IRP. The approaches, or in this case portfolios, are not simply choices, and we did not ask participants to choose one of the options. Rather, they are designed to ensure a full conversation and assist participants in working through

many of the different aspects of the issue. They are set up based on the assumption than there is no magic bullet, but rather each scenario inherently has strengths and weaknesses. Ideally, the conversation revolves around participants engaging those strengths and weakness. At each event, we spent dedicated time discussing each portfolio while capturing notes on the aspects people supported or wanted to push back on. At the events, we spent about an hour walking through the four scenarios, spending around 15 minutes on each.

For the last thirty minutes of each forum, we first spent some time specifically discussing PRPA's three pillars of providing (1) **reliable**, (2) **financially sustainable**, and (3) **environmentally responsible** energy and services to their owner communities. We asked participants to discuss each, as well as how they would personally work to balance the three. Then we explored three final questions that were framed by the CPD based on our analysis of the issue and the Q&A during the fall sessions. Participants also had the option to provide written comments on the portfolios on a worksheet as well as complete a survey at the end of the event. The first question in the ending survey asked participants to write out the most important thing they heard or said that they wanted the PRPA board to hear. The word for word responses to that question are provided in Appendix 1, and the rest of the survey results in Appendix 2 of this report.

For the online version we developed when we had to cancel the Fort Collins event, we provided a video that mirrored the introduction given at each live event (available here). Then we developed a full survey that allowed participants to respond to each part of the placemat, the pillars discussions, and the final three questions.

This report works to summarize what we heard during the discussion at the three live events (each table had a CPD notetaker), on the worksheets and surveys completed during those events, and the surveys completed through the online process. Our goal is not simply to report the most common themes, but rather to fairly summarize the variety of arguments/reasons that were expressed in order to provide the PRPA Board of Directors a better sense of how the participants engaged the portfolios. Facilitators sought to get beyond mere expression of opinions ("I like X") and pushed participants to provide reasons for their views. The table notes worked to capture those reasons. Over 4,600 cells of information (some short phrases, others paragraphs) were collected overall. This report provides analysis about the four portfolios, then the pillars discussion and the three questions, and then some additional overall themes from across the data. In the concluding Next Steps section, we provide some key insights into the data for further consideration for the board.

Who was in the room?

Participants completed surveys at the end of the night that included some evaluation questions and demographic questions. We asked those same demographic questions to those that completed the online version set up to replace the Fort Collins events. Full details from those surveys are included as Appendix 2 at the end of this report.

Overall, ***it must be noted clearly that the audience was not representative of the communities***. The topic was a rather technical issue, and drew a much more educated audience than a typical public event. Since we anticipated this, we asked a specific question about educational attainment. Almost 64 percent of the audience reported they had a "graduate or post-college school" as their highest level of education, and another 25% were "college graduates," leaving only 11% combined at either some college, vocational/tech school, or high school graduate, or less than high school. The audience was also clearly predominately older and well off. A full third of the participants reported an income of over $100,000. 72% of the participants were over 54 years old, and only 16% under 45. Over 90% lived in a single family home. Ethnicity was 84% white/non-Hispanic, 4% Hispanic, 4% Asian American.

Based on this data, the information is this report should not be considered representative of the population in the four cities. As a result, the report focuses on the arguments made rather than how often they were made (i.e. qualitative over quantitative analysis). PRPA also completed a broader survey to gather opinions on the portfolios. That data has the advantage of being more representative, whereas the data in this report has a much deeper level of detail regarding the reasons participants provided for their views due to the process involved (small group discussions, facilitators, the availability of experts, etc.). Combined, the information from both can be very useful to the board in their deliberations.

Event assessment

The end of event surveys also included several assessment questions (full details in Appendix 2). The assessment questions focused on the interactive aspect of the face to face events in Longmont, Estes Park, and Loveland. Participants gave the event high marks overall, with 85% choosing "Very satisfied" or "Satisfied" regarding their overall satisfaction with the forum. Participants reported they learned enough to have an informed opinion (Q2), that the forum encouraged them to weigh arguments and evidence (Q3), and that the forum encouraged them to consider the values and deeper concerns related to the (Q4). Participants reported moderate changes in their opinions (21% said their views were entirely the same as before, 45% mostly the same, 26% changed somewhat, 5% changed a great deal, and 2% changed completely). They also reported they had a sufficient opportunity to express their views (70% definitely yes and another 29% probably), felt they were treated with respect (84% almost always, 15% often), and had little trouble understanding or following the discussion (38% never, 38% rarely).

Key Findings.

Section 1 - Responses to the Four Portfolios

(The placemat with the information about each portfolio that participants were responding to is available here.)

Portfolio 1 responses

The first portfolio was presented primarily as a base line, particularly for the modeling process PRPA was running, to compare the impacts of the various portfolios. As explained by PRPA (and by the CPD during the introductions of the events), this portfolio essentially represented "business as usual" for PRPA going back to before their 2018 announcement to seek 100% noncarbon sources by 2030.

The responses to Portfolio 1 were almost unanimously negative (a couple responses to the FC survey supported it, and very few supportive claims were identified in the table notes). The responses to this portfolio primarily tended to fall into a few categories:

- **Simple dismissal.** The most common response was simply dismissing it as an option quickly and without much discussion. Several tables—somewhat as expected—did not spend much time discussing this portfolio, seeing it as not really an option. Comments such as "not an option," "should not even be considered," "nonstarter," and "not worth talking about."
- **Frustrated rejection.** Quite a few participants were frustrated by the inclusion of this option and lashed out at PRPA for even including it. Many brought up the 2018 decision to pursue a 100% noncarbon future and saw the inclusion of this option as clear backtracking on that promise.
- **Strong opposition to coal.** A common argument to push back for portfolio 1 (as well as 4) was the plan to keep the Rawhide coal plant open past 2030. Several participants called for all coal use to be stopped immediately or "as soon as possible." Coal's impact on the environment, air quality, and public health were mentioned. The idea of selling excess energy produced by coal was strongly criticized. There was little opposition to the negative comments on coal, other than a couple participants making the economic argument that Rawhide is paid for and efficient for a coal plant, so should be allowed to continue to its planned end.

- **Dismissed as "not enough" or "much too slow."** Numerous participants pushed back on this approach primarily based on it significantly falling short of the goal of renewables.

- **Recognition of its role as a baseline.** A few participants saw this portfolio as a "control" or "baseline" to better understand and compare to the other options, and still dismissed it quickly.

Portfolio 2 responses

The response to Portfolio 2 was mixed, with two primary broad groupings of responses: one group supported the portfolio due to its significant progress on renewables and ability to balance the pillars, and another group felt it was not enough because it did not achieve 100% noncarbon. The specific arguments made to support both these broad claims are detailed below. The debate on this portfolio primarily revolved around the question of keeping natural gas as a potential "backup" transition fuel. Participants were rather split on that question.

Those that supported Portfolio 2 laid out several **arguments in support**, such as:

- It was often phrased as a good step forward, and strong progress toward the overall goal. (See the "as much as possible" overall theme on p. 23, it was rather prevalent in the discussion of Portfolio 2).

- Several participants felt this portfolio was more realistic and mentioned the difficulty of achieving the final 5-10% of being fully renewable. Some expressed support for natural gas as a bridge to being fully renewable, while still hoping natural gas would be used as little as possible (see the additional analysis on p. 16 regarding natural gas).

- Several participants specifically supported the idea that coal would be completely phased out.

Those that **pushed back on Portfolio 2** generally argued:

- It still fell short of the 100% noncarbon goal, thus did not do enough for the climate. Many struggled with the idea of officially accepting the failure of achieving the 2030 goal at this point. See related overall themes "as much as possible" (p. 23) and "the promise" (p. 20).

- Numerous participants specifically pushed back on keeping natural gas. Many recognized it was less damaging to the climate than coal when burned, but cited problems with the fracking process of capturing natural gas and leakage of methane, which was identified as a particularly problematic greenhouse gas (see p. 16 for more on natural gas).

- There was almost universal push back – including from those that generally supported Portfolio 2 – to the idea of building a new natural gas plant.

Portfolio 3 responses

Many participants preferred Portfolio 3 from the start. It clearly had the most explicit support in terms of individuals verbally picking an approach (note: again, the overall process was not focused on people choosing an approach, but rather talking through what they liked or did not like about each approach), but many still specifically announced their support for Portfolio 3, even during their introductions.

Primary arguments **in support of Portfolio 3**:

- By far the most cited argument in support was that Portfolio 3 reached the goal of 100% noncarbon, which was seen by many as central to their environmental concerns.

- While some participants accepted the tradeoffs of higher cost and lower reliability, participants more often pushed back on those numbers, and believed that either the goal of 100% noncarbon will be able to be reached without the negative impacts on cost and reliability, or the investment in added short term costs would soon give way to longer term savings (primarily based on the argument that new wind and solar would have costs to set up, but once in place, would be significantly less expensive than having to continue to purchase carbon fuel). Some even argued that costs would go down rather than up as we transition to fully renewable.

- Supporters of Portfolio 3 expressed confidence in solar and wind, as well as developing energy markets, to provide the gains in renewables without the negative impacts predicted in the models.

- Many participants expressed significant frustration with the data presented in Portfolio 3 regarding costs and the use of “unknown” for reliability. They doubted the data’s accuracy and questioned the motives of PRPA in providing them (see “data push back” on page 22).

Those that expressed **concern with Portfolio 3** tended to rely on arguments such as:

- The impact on cost and/or reliability is too high.

- The approach would rely too much on batteries, which are developing technology that currently is too expensive and have environmental impacts of their own (see the “battery storage” theme on page 21).

- The portfolio focuses too much on achieving the 100% goal rather than working to balance the three pillars and reasonably move forward with technology (see “promise” theme on page 20).

Portfolio 4 Responses

Participants struggled somewhat with the fourth portfolio. There were less clear positive or negative responses to the portfolio as a whole as they tended to support certain aspects and push back on others. Many also mentioned combining some aspects of this portfolio with either Portfolio 2 or 3. Overall, some of the key arguments heard during the discussion of this portfolio included:

- Confusion as to why—considering the assumption of greater technological advances—this portfolio failed to have stronger results in terms of replacing carbon sources.
- General support for distributed energy strategies, especially rooftop solar. Many want the community to play more of a role in addressing this issue, and are looking toward PRPA and the cities to help them make an impact.
- Many pushed back on Rawhide potentially not being closed down until 2035.
- Once again, significant opposition to the development of a new natural gas plant and expressed frustration that such a plant was included in this portfolio but that wasn't evident in the placemat.

Section 2: Three Pillars Discussion

After participants discussed the four portfolios, we spent around 15 minutes at the tables specifically discussing PRPA's three pillars of providing reliable, financially sustainable, and environmentally responsible energy and services to their owner community. As CPD Director Martín Carcasson explained during the introductions, the three pillars fit well with the CPD's common focus on wicked problems. Wicked problems are characterized by underlying values that are each supported individually, but often have inherent tensions when pursued simultaneously. In the case of energy production, most everyone wants their energy to be reliable, affordable, and environmentally responsible, but those three don't always fit together very well, requiring tough choices. Thankfully, technology is starting to make the tensions much more manageable/less wicked – particularly in terms of the cost and impact on reliability caused by shifting to renewable energy. The four questions asked during this section were:

- How important is a 100% noncarbon energy mix?
- How important is reliable electric service?
- How important are low electrical rates?
- As you consider prioritizing and balancing these three pillars, what suggestions do you have?

The summaries below include analysis both from these questions as well as other places in the conversation when these issues arose.

Arguments from discussions regarding the environmental pillar and a 100% noncarbon energy mix

It is clear that advocating for a stronger focus on the environment and elevating the place of that pillar among the three was a primary concern of many that participated in this process. When participants were asked to express their view on the importance of the environmental pillar and the 100% noncarbon energy mix, the following arguments were heard (somewhat organized in terms of frequency):

- The environment must be considered the most important/top priority (many participants expressed this sentiment during their introductions to explain why they attended the meeting)
- The climate crisis is an "immediate threat," "catastrophe," or "emergency" that demands prioritization.
- The future of the planet / survival of society is at stake. A few participants mentioned their grandchildren.
- Focusing on the environment is critical due to numerous public health concerns (air quality or pollution was mentioned most often). Some participants argued "public health" should be considered as a 4th pillar and that public health was not adequately included in the placemat or in PRPA's decision making process.
- The social cost of carbon should be considered more clearly/strongly in the comparisons between portfolios.
- A few participants expressed an opposing view that the environment must be considered below the other two pillars, and that climate change concerns were exaggerated by a loud minority.

Arguments from discussion concerning the reliability pillar

- Very strong support from almost everyone.
- Many saw reliability as the #1 priority, deeming it "essential" or "absolutely necessary," especially for businesses.
- Others argued that reliability was critical but pushed back on the threat to reliability in the pursuit of 100% noncarbon (pointing towards batteries, technology, or the energy market). In a sense, they rejected the tension between reliability and renewable energy and believed both could be achieved soon without any necessary sacrifice.

- A few were explicitly willing to take the risk/give up some reliability and even "accept rolling blackouts" due to the environmental stakes being so high.
- Several highlighted the particularly negative impact unreliability has on business, though some mentioned that some key businesses such as hospitals would have their own backups.
- Some expressed concern that the lack of reliability, especially with higher costs, may erode the support or "buy in" for environmental reforms, and thus urged caution in moving forward too quickly.
- Specific concerns about the impact of power outages on sensitive technology and medical equipment were expressed.
- A few noted potential unintended environmental consequences to the lack of reliability if people buy their own gas-powered generators to address outages as well as equity concerns if some people can afford their own solar and/or battery systems but others cannot.

Arguments from discussion concerning the financial pillar and affordable electrical rates

Of the three pillars, the financial sustainability pillar had the most varied support. The range of arguments included:

- Generally, many argued affordability was important, but often put it below the other pillars. Several specifically labeled it as the least important of the three.
- Some of those that dismissed costs did so at least in part because they either believed the cost wouldn't rise as much as anticipated or saw it as an investment with short term costs but long-term financial benefits.
- Several participants mentioned they would be willing or even happy to pay more to achieve environmental gains. They often noted that having low costs but higher environmental impact was actually a problem rather than something to frame as a positive. A couple people argued that we have been "underpaying" for years because of the lack of fully considering the costs of carbon. (Note: it is worth repeating here that the audience for these forums were generally more well off economically than average).
- Some participants noted that an increase in rates would likely have the positive impact of residents being more careful about their energy consumption and more strongly considering rooftop solar.
- The primary concern expressed about rising costs was the impact on lower income residents and older residents with fixed incomes. Participants supported new and current programs to help residents in those situations (with some recognizing

those programs will likely be at the city level rather than through PRPA). A few specifically mentioned they would be willing to pay more both for environmental reasons and to assist lower income residents.

- Those that were concerned with cost increases (beyond the impact on lower income) tended to primarily cite the impact on current and potential businesses and cost of living.

Balancing the three pillars

After discussing the three pillars, participants were asked about how to best balance the three. As expected from the themes from above, people generally wanted to maintain reliability, while focusing more on environmental impact and accepting – if necessary – higher costs. Several felt that PRPA had prioritized economics too much in the past compared to the environment. PRPA was praised for its reliability, and support for maintaining that was strong. Some put reliability above the environment and others vice versa, but overall, those two were supported rather equally. Once again, several participants pushed back somewhat on the need to prioritize, believing that becoming 100% noncarbon could be done without significantly impacting reliability or cost (or even *improving* costs in the long run).

Section 3: Discussion on Three Key Tensions

After the discussion of the three pillars, participants potentially engaged three final questions that had been developed by the CPD. We developed these questions to highlight specific tensions that seemed to be relevant to the discussion that we wanted to make sure each table engaged. Too often in typical processes, participants talk past each other on such tensions rather than working through them. We anticipated the topics of these question would inherently come up in other parts of the discussion but put them here to make sure if they didn't, the facilitator would have a chance to spark some specific conversation on them. The summary below includes analysis both from the questions as well as other places in the conversation when these issues arose.

Q1. Discussions on the role of technology

The question prompt was, "Should Platte River assume and rely heavily on technology advances or be more cautious? What happens if technology does not advance as rapidly as needed or has unintended consequences?" The question was developed to explore what seemed to be a gap between many of the questions and responses from participants during the fall 2019 meetings and the PRPA material. Many commentators seemed to be particularly optimistic about the development of technology to support renewables and rarely consider any downside.

The topic of technology arose often throughout the conversations, providing a variety of reactions. Key themes included:

- The most common reaction (but not by much) called for a middle ground position of being cautious overall with new technology, but to move quickly when that technology is established and costs improve. Developing technology was clearly seen as critical to negotiating the pillars better.
- Many also pushed back on the idea of caution due to either optimism in technological advances occurring (with a few flatly saying the technology will be there and renewables will actually save us money), confidence in our ability to solve the coming problems, or because of the urgency of the climate situation (we "can't afford" to be cautious). A few specifically dismissed the need to consider tensions between the pillars and explained there would be no need for sacrifices.
- Another common theme was to be bold and to be national leaders in technology. This ties to the "Northern Colorado as national leader" theme on page 23.
- A few did specifically push back on the phrasing of the question as being leading, too negative, or written to invoke fear of technology.
- A few also suggested PRPA should work more with universities, the local municipalities, and/or community panels to assist them on decisions regarding technology (rather than relying primarily on industry consultants). There was a recognition that difficult technological questions will be ongoing and developing broader local capacity for those decision-making processes would be valuable. The CPD supports this suggestion.

Q2. Discussions on the use of natural gas and potential of building a new RICE plant

The second question from the final session focused on the question of natural gas. Again, these questions were designed to make sure we had sufficient discussions of key issues. As expected, natural gas was a subject of discussion throughout the events, and the summary provided below pulls from arguments made about natural gas in response to the question below as well as discussions throughout the process.

> Q2. Are the noncarbon energy mix differences between Option 2 and 3 worth the significant added cost and risks to service reliability? Would you be willing to accept maintaining some natural gas-based options, primarily to serve as backup to ensure reliability? (Currently, natural gas is about one third of PRPA's effective capacity but only 1% of actual production because it is mainly used as a backup only when needed. This backup function will become more important as we rely more on renewable resources).

The discussions at the tables and the Fort Collins survey regarding natural gas were robust and varied. Overall, there were likely more comments collected on this topic than any other. Below is a summary of the primary arguments, organized by those supportive of maintaining natural gas and then those opposed.

Supporting arguments for natural gas

- Several participants supported maintaining access to natural gas, relying on terms such as "backup," "bridge," "insurance," "'just in case," "worst case scenario," "last resort," "filling the gap." Comments often specifically highlighted the limited basis of their support, both in terms of amount (a "small fraction" or "as little as possible") and time ("short term" or "not after 2030").

- The support for natural gas was often framed as reluctant support. They argued it was necessary for reliability reasons or "acceptable," but overall, they still held reservations about natural gas.

- The flexibility of natural gas in terms of its ability to cycle up and down and on and off quickly as needed was noted by participants as a key feature, particularly in terms of addressing periods of dark calm. (We should note that this argument was specifically mentioned in the introductory presentation).

- Many argued that gas was better than coal in terms of environmental impact, therefore they supported the use of natural gas if it facilitated the shift away from coal.

- A few participants noted that natural gas supply chain would be local and support local jobs.

Opposing arguments on natural gas

- The most consistent argument throughout the entire process was the strong opposition to the building of a new gas power plant. At times, participants explicitly said or wrote, "no new gas plant" without giving reasons, and others provided reasons such as:

    - It would represent going backwards rather than forward toward renewables.

    - It goes against the promise of 100% renewable by 2030.

    - Such a long-term investment on a technology that will likely not be used for very long did not make sense. Several participants specifically used the term “stranded asset.”
    - Banks are starting to avoid financing projects tied to carbon thus the financing would be problematic. A few argued that coal and natural gas companies were essentially going out of business.
    - Numerous participants that supported the idea of maintaining some natural gas as a backup also specifically pushed back on the idea of a new natural gas plant. They argued that existing facilities would be sufficient for the role of an emergency bridge energy source.

- Several participants rejected the idea of maintaining natural gas due to its environmental impacts. The question of whether coal or natural gas is more detrimental to the environment was actively debated by many. Most understood that coal is worse in terms of emissions when being burned, but many expressed concerns about the negative impacts of the fracking process, and, in particular, concerns about methane leakage during the process of collecting or storing natural gas. Participants noted that methane was 80x as potent than CO_2 as a greenhouse gas.
- Some participants expressed concern that maintaining access to natural gas may serve as a crutch to the broader efforts to become 100% noncarbon. Essentially, they argued that knowing we had the backup of natural gas if needed would slow innovation in other areas.
- A few participants pushed back on the wording of the question, feeling it was worded in a way to unfairly support natural gas and drive specific responses.
- One suggestion made by a couple participants was to have some sort of guarantee of limits on the use of natural gas to ensure that it would be used in a very limited way.

From the comments above, significant factual questions arise regarding the environmental impact of coal versus natural gas that could be studied more directly. Part of the difficulty will be that while PRPA is involved in the use of both to create power, they would not typically be involved in the process to mine or capture them. If the environmental impacts of natural gas are more from earlier in the process and storage, the degree to which those factor into PRPA’s calculations is an important issue. (This

issue is similar to the question of how much PRPA should consider the environmental impacts of the development of lithium batteries).

Q3. **Discussions on the question of focusing on PRPA area or broader.**

The third question worked to bring out the tension between the idea of focusing solely on PRPA's ability to deliver energy to its member communities or considering emissions from a broader perspective. The question was:

> To what extent should we consider the broader regional market and our potential ability to produce energy more efficiently with our energy options than our neighbors? Do we focus only on our specific mix or, if we can produce energy more efficiently and with less environmental impact than neighbors, should we leverage these tools for broader regional gains?

The CPD developed the question due to the natural tensions between global environmental concerns and the narrower focus on PRPA and its resources. The Rawhide plant, for example, is considered one of the most efficient coal plants in the area, but in both Portfolio 2 and 3, would be closed before its planned economic retirement due to environmental concerns. The question attempted to query whether PRPA should maintain Rawhide and/or its natural gas resources if they are more efficient/less polluting than neighbors who may be relying on less efficient sources.

The four most common responses (all with similar frequency) were:

- We should focus on getting to 100% renewable ourselves first, then we can help others (primarily by providing excess renewable power so they don't have to burn carbon).
- We should not sell or profit off burning coal.
- Calls for more information or clarity about the question (some interest in the idea but needed more specifics or details about what that would look like).
- Support for the idea of a broader focus, citing the importance of a "one planet" view and the need to simply reduce emissions as much as possible globally.

Other less frequent arguments included:

- If we maintain carbon plants here to sell to others, the air quality and public health impact stays here with us.
- We can ultimately make a broader impact by leading locally and showing other communities how it is done.

Section 4: Additional Key Overall Themes from Across the Discussions

This section reviews comments organized by themes derived from the data across the events, including the table notes, written comments, and surveys. Comments were coded and organized by those codes to provide an overall sense of the conversations surrounding these issues.

Below, the following themes are summarized:

- The Promise
- Battery Storage
- Data Pushback
- Northern Colorado as national leader
- As Much as Possible
- Solar Power
- Energy Markets
- Pace of Change
- Other sources of power

The Promise – One of the most interesting and diverse themes across the conversations involved the goal announced by the PRPA Board of Directors concerning striving for 100% noncarbon by 2030. The goal was often a key subject of conversation, but participants responded to it in many different ways. It should be noted that when the decision was made in 2018, it included a significant list of conditions that would need to be met. Participants tended to remember and invoke the promise but had less understanding of the conditions. After noticing that situation the first night, the CPD did provide a handout on subsequent nights that included the text from the document that was signed by the board (that document is available here). Some of the most common arguments regarding this theme include:

- For many, the 2018 decision was seen as a **promise that must not be broken**. These participants supported scenario 3 and dismissed the others because they fell short of that promise. They generally expressed frustration for the overall process because they saw it as PRPA trying to back off its promise. Many of the participants that expressed this perspective also mentioned that the goal represented PRPA responding to the preferences of the leaders and people of the four cities, therefore PRPA couldn't decide to move away from the goal on their own.

- For others, the 2018 decision served more as **a positive stretch goal**, an ambitious target that should encourage positive action and innovation to reach, but nonetheless should not be taken literally or justify unreasonable actions. Those that saw the goal in this way argued that they would be happy to see PRPA be 95% or 98% noncarbon by 2030 (see the "as much as possible" theme on p. 23). Interestingly, some that fit in this group supported scenario 2, as long as PRPA

strived to get as close to the goal as reasonably possible, whereas others tended to support scenario 3, but also signaled that aiming for 100% but falling a bit short would be acceptable. They did not, however, want to abandon the goal. For them, keeping the goal as an aspirational target was important, and admitting 10 years before that we won't be able to reach it –as Portfolio 2 essentially does – was problematic.

- A less frequent perspective saw **the goal as a "distraction," "artificial," or "arbitrary" target** that does not warrant the attention it is getting. This perspective connected with the "pace of change" theme (p. 24) that argued energy technology is changing so quickly it is difficult to plan so many years in advance.

- Finally, a small percentage of participants pushed back on the goal overall and saw it as a mistake for PRPA to focus so much on 100% noncarbon energy.

Moving forward, more clarity about the 2030 goal will likely be an important issue, as each of these perspectives lead to rather distinct viewpoints.

Battery Storage - A robust debate concerning batteries occurred in many of the discussions and is clearly a crucial part of the decision-making process. Overall, it was understood that relying on lithium ion batteries was a significant part of Portfolio 3, critical for achieving 100% noncarbon but also a driver of cost and reliability concerns. The opinions on batteries varied widely, and likely drove many differences in broader opinion between Portfolio 2 and 3:

- Interestingly, perhaps the most common theme focused on considering storage beyond batteries. Several participants were interested in alternatives such as flow storage, or storage that relies on inclines and railcars or towers (while recognizing that flow storage projects would be difficult to complete within this time frame).

- Several expressed concerns about the environmental impacts of lithium batteries, particularly the mining process and how they would be recycled.

- A few argued that the technology and costs of batteries were improving rapidly and would likely not have the costs anticipated in Portfolio 3. That argument, however, was also used to justify waiting longer before investing in batteries since the cost will be dropping.

- A few noted that the number and size of the batteries needed to meet our needs is unprecedented and problematic.

- A few expressed concerned that the batteries are not sustainable, don't last, and will wear out. Examples of batteries catching fire were also mentioned.

- A few explained that battery technology is changing so quickly, it is difficult to make long term plans regarding them at this point. (This was often expressed with

the argument to focus on getting to 90 or 95% noncarbon, and then at thatpoint seeing where the battery technology is rather than trying to decide now).

Data Pushback - One of the most common themes overall involved comments that pushed back on the information on the placemat, and in some cases, PRPA's motives behind the data. Some of the key arguments made fitting this theme included (organized generally by frequency):

- Data was misleading, biased, dishonest (particularly mentioned about Portfolio 3 and, to a lesser degree, Portfolio 4). Several comments such as "I don't believe these numbers" or "the information is biased" or that figures were "fabricated," "wrong," "inflated," or "bogus."
- The information in the placemat goes against information from other groups (specific groups mentioned included NREL, NCPLE, and FCSG). Several called for PRPA to bring in different outside consultants than who they relied on for this process, who some saw as biased toward carbon-based sources.
- PRPA is too conservative/risk averse/hesitant to innovate. Data for Portfolio 3 in particular was seen as presenting a worst-case scenario rather than the most likely one.
- The cost figures on renewables (particularly in Portfolio 3) were wrong/ exaggerated/overstated.
- The use of "unknown" for reliability in Portfolio 3 was singled out often by participants as being problematic/biased/unfair.
- The information was purposefully designed to drive a particular conclusion (primarily pushing people to Portfolio 2 and away from 3). PRPA was using "scare tactics" or "fear factors" to push people away from the 100% noncarbon goal.
- Too many assumptions made in the placemat were unclear or needed more information about how PRPA arrived at them. (We should note here that the process required a limit on the amount of information to allow time to engage it during the limited time period, otherwise the event would have simply been a presentation, not a chance for people to engage and discuss the options). Experts were on hand to help explain the process that led to the data if needed.
- PRPA was accused of being too secretive and called to be more transparent.
- PRPA was accused of wanting to keep burning coal generally or keep the Rawhide plant open specifically. Others framed it more in terms PRPA not being passionate enough about renewables.

Northern Colorado as national leader - In several of the conversations, participants brought up the importance of Northern Colorado or their specific community being seen

as a national leader in the push to renewable energy. Several arguments were given to support that claim:

- Due to our natural advantages in terms of sun and wind and our strong economic standing, we should be a leader. We have no excuses.
- Leading is important because it will inspire improved behavior in the community (i.e. reduced energy consumption, rooftop solar, etc.).
- Leading is important because it will drive technology. As more communities strive toward 100% noncarbon, markets will expand, and technology will follow.

As much as possible – A theme closely related to the previous theme was perhaps one of the most frequently expressed throughout the forums. Numerous participants made the argument that regardless of the scenarios and the 2018 promise, they primarily wanted PRPA to work toward getting as close as possible to 100% noncarbon while maintaining reliability (and to a lesser extent, reasonable cost increases). People that made this argument tended to support more flexibility and recognize that changes in technology will likely impact any long-term plans. In general, participants making this argument explained that they would be content with PRPA reaching 95 or 98% noncarbon by 2030, while also leaving open the possibility that with technological advances, 100% could be reached sooner than 2030.

Solar power - All the portfolios assumed growth in rooftop solar, with the fourth portfolio making it more of a key aspect of the plan moving forward based on distributed energy. The discussion of solar power occurred throughout the conversations, and the themes are captured here.

- Overall, participants were very supportive of expanded reliance on solar. There were no negative comments about solar in general. Many expressed support for the assumption of growth in community solar and were excited about its costs decreasing.
- Several participants encouraged the development or continued use of incentives for rooftop solar. Residents from Loveland argued that the city tends to discourage rooftop solar and thus the removal of disincentives would be important.
- There was some debate as to whether incentives should be used to encourage more rooftop solar or if larger community solar projects were more important and impactful. Concerns about rooftop solar included:
    - Issues related to equity. Since rooftop solar typically means short term costs for long term benefits, some expressed concern that more well-off residents could invest in solar, while lower income residents and renters would not be able to, thus furthering inequalities. Would

losing a significant percentage of customers from them opting for rooftop solar increase costs for those unable to?

- Some concerns – more questions than arguments – about the mining of materials for solar panels and their disposal after their useful life.

- Having individual homeowners pay for rooftop solar rather than pooling their money for community solar was seen as inefficient by some. Others simply had questions about the relevant value of each.

Energy markets -While not a major topic of discussion – especially because it wasn't a distinguishing feature between the portfolios but rather more of a constant across them – some participants did make comments or ask questions about their role.

- The most relevant topic regarding markets was primarily discussed within the context of Portfolio 3. Participants asked how PRPA was including energymarkets in its analysis, and why markets would not be more of a support to reliability, especially during periods of dark calm, in Portfolio 3. Several specifically asked about PRPA joining the Western Energy Imbalance Market (WEIM).

- Overall, the lack of any specific information about markets and PRPA's views or plans with them was frustrating to a few participants.

- Questions about how much efficiency is lost during transmission were brought up a few times.

- For many, the potential of markets was clearly a source of optimism in the transition to renewables as well as a reason for pushing back on some of the negative consequences outlined in the placemat.

Pace of Change - Quite a few participants across the conversations pushed back somewhat on the overall IRP process, citing the pace of technological change regarding renewables and batteries. Focusing on developing a long-term plan in this context seemed counterproductive. They argued that PRPA should focus primarily on the next few years while continuing to explore their options. It was noted that Portfolio 2 and 3 likely do not differ much for the next few years, and decisions about actions closer to 2020 cannot be made with any clarity at this point. (We should note that while this process is a long-term planning focus, this process would be completed again in 5 years, and the decision made for this IRP doesn't necessarily lock PRPA into a specific long-term path).

Other sources of power - It was explained in the introduction that while PRPA researched numerous developing technologies, the range being taken in consideration for this PRPA plan were rather limited (more details in the technological review report completed for PRPA is available on their website). As a result, certain technologies were not specifically a part of the portfolios being explored. Participants, however, were of

course welcome to bring up alternative technologies on their own during the discussions. Overall, such comments were pretty limited, but are summarized here:

- A few participants lamented that nuclear is not being considered and mentioned that it would be a better noncarbon option than solar or wind, especially for a baseload.
- A few others asked about the possibility of nuclear, though it was typically explained to them by participants or the PRPA experts that getting a nuclear facility approved and built would be a very difficult and long-term process.
- Biogas, geothermal, and more hydropower were mentioned by a few participants, but the conversations were rather limited.

Next Steps

The analysis presented in this report highlights several issues to address moving forward. A key aspect of CPD's mission is to help elevate the quality of public discussions in order to better address difficult shared problems and improve public problem solving. Some of the key moves to elevate conversations is to identify key factual questions to study more directly, to expose consistent and problematic misinformation, and to identify the multiple underlying values relevant to the issues and the natural tensions between them in order to frame the issue more productively as a shared wicked problem.

In terms of **key factual questions to address**, two seem particularly important to explore. First, much of the push back on the data focused on the numbers in Portfolio 3 concerning the increase in cost and "unknown" impact on reliability. The pushback clearly reveals a gap between PRPA's information and that of numerous participants that warrants more focused examination. Part of the issue may be broader assumptions about the cost of solar and wind -- which many recognize are dropping, particularly in comparison to coal and gas -- and the issue of battery storage. The public may be focused on the cost of producing energy with solar and wind, whereas PRPA is focused more on the cost of necessary storage capacity to ensure reliability when operating fully on noncarbon sources. The question of storage -- both with batteries and by other means -- is a related area that calls for added study and clarity. The environmental impacts of mining the materials for batteries and their disposal should be a part of that analysis.

A second key factual question focusing on the environmental impact of natural gas. As the analysis on pages 16-19 shows, there were a wide range of opinions expressed on this issue. There seems to be some clarity in terms of the burning of natural gas versus coal, but less clarity in terms of the overall environmental impact of natural gas beginning with the process of capturing it.

In terms of **key misconceptions to address**, thankfully there is little to report. From our perspective, we did not find consistent misinformation expressed in the discussions or surveys that call for direct responses. That being said, PRPA may see certain claims expressed during the forums that they believe call for refutation.

Lastly, in terms of **identifying underlying values and addressing the natural tensions between them**, PRPA's mission and framing of the three pillars inherently provided a useful framework to engage the issue as a wicked problem from the beginning. Overall, participants were able to deliberate well regarding the tensions between the three pillars. Almost all participants saw the value of all three on their own, as well as the natural tensions between them. Two issues that could be addressed more effectively to improve these deliberations moving forward, however, were differing assumptions about the potential of technological advances and questions about PRPA's motives. Clearly, several of the participants' primary concern was elevating the place of the environmental pillar in comparison to the fiscal responsibility pillar, and also, for some, in comparison to

the reliability pillar as well. Some were willing to accept the tradeoffs, but for others there was less of a concern about the need to negotiate tensions because they assumed -- partly due to an optimistic belief in technology -- that their environmental goals could be accomplished without a corresponding impact on the other pillars. The degree to which that optimism is well founded or not will likely be informed by further research on the factual questions highlighted above.

The second issue that made the deliberations more difficult were assumptions about PRPA's motives. Some participants essentially avoided the tensions between the pillars by assuming that PRPA was not being forthright about their intentions, particularly in terms of them favoring carbon sources or generally being more conservative than necessary. The extent of the push back on some of the data from the placemat does reveal the need for further engagement to build more trust between PRPA and these participants. Some suggested the development -- or perhaps a return -- to PRPA utilizing community panels as an ongoing resource for their long-term planning. Exploring options there may be fruitful.

A third issue that warrants further discussion and clarity connected to the pillars regards the issue of the social cost of carbon or more generally the role of public health impacts in the PRPA's decision making process. There was some confusion as to how much the social cost of carbon is part of the modeling process that led to the numbers in the placemat, and to what extent public health impacts -- particularly in terms of air quality and pollution -- are included within the environmental pillar or whether a public health pillar should be added.

Similarly, the potential role of energy markets was also raised by some as a critical aspect of balancing the pillars as we move to noncarbon, but many wanted more information about how those markets will work and their impact.

Finally, whereas the IRP process involves a distinct time frame, it is clear from both the PRPA perspective and by many that participated in the process, that the conversation about shifting to a noncarbon energy future will be an ongoing one that will shift often in the coming years. At the events, we noted in the introduction that the question we face is not *whether* we should pursue a noncarbon future, but *how* we should best reach that goal. That question demands a high-quality ongoing conversation that brings together PRPA, the four city utilities, and the broader public. While this IRP process will lay out a long-term plan based on what we know at this point, all parties seemed to recognize that plan will need to be adjusted as new technologies develop and government regulations change. Hopefully, the analysis provided in this report contributes to the quality of that ongoing conversation.

Appendix 1

Answers to “What is the most important thing you heard or said today that you want to make sure that the Platte River Power Authority Board of Directors considers?”

At the end of each event as well as the online survey that replaced the Fort Collins event, participants were asked the question above in order to capture their top of mind view once they have gone through the process and considered the portfolios and key issues. The information below includes the participants’ exact words, either typed up from their handwriting at the event or included from their online response. These responses were included in the overall analysis in the report, but are included here for the board to read them directly.

Answers from Longmont event

- PRPA is pursuing 100% non-carbon energy!
- This is an emergency. Act like it.
- PRPA is out front of this problem or solution of carbon.
- Carbon free will save you money.
- Top priority needs to be getting off all coal sourcing ASAP. Focus on Plan 3.
- Achieving 100% non-carbon energy by 2030.
- This process was fun, but neither educational or truly a way of registering opinions- it was probably more useful for the student participants than the participants.
- Maintain the goal of 100% renewable energy by 2030. Only one plan presented has that option.
- I would like us to move to 100% as quickly as possible. Given the right effort, itseems highly feasible to achieve this before 2030.
- Very important to get off coal ASAP. The value of intermediate goals, ie we don't have to do 10 yds at a time- Do something now. PRPA establishes a "charity" help fund to facilitate transition for all.
- Moving forward in a smart manner to 100% renewable energy sooner ratherthan later!!!
- We must move to 100% renewable! Get as far as possible as fast as possible. Become creative and start thinking about the possibilities instead of being stuck in an old model that is killing the earth.
- Please provide more information on the options in future. Perhaps a 20-30 minute presentation/Q&A reviewing options and allowing for questions rather than havingpublic read on own at tables.

- We all think these scenarios are misleading. The directors don't even understandthem. We should be more straightforward with our stakeholders.
- Much more public discussion of plans and cost and magnitude of energy storage; not just energy production.
- Batteries are not the only way to store power. Incentives for individuals and businesses take the load off of PRPA to improve infrastructure.
- Environment is important but reliability cannot be risked.
- We need to aim and push forward for 100% that is the goal. If it is not achieved, ok, but it only makes sense to work toward our goal.
- Don't agree with the last assumption.
- Andy Butcher- very helpful.

Answers from Estes Park event

- We must move away from coal, starting as soon as possible, incrementallyadding renewable sources and zero coal to PRODUCE power by 2030.
- Portfolio seemed biased by not including the economic benefits to community with new jobs (solar install and wind install). Biased about "system reliability," biased "unknown" for option #3, not true!
- PRPA presented options based on delivery. WE should be looking at production.
- Be more transparent, e.g., what assumptions went into portfolio 3?
- Environmental concerns as a priority.
- That the jump from 90-100% in non-carbon leads to fears and risks around reliability and affordability that might make people more willing to consider alternatives.
- That PRPA needs to move more quickly. This is crucial. Option 3.
- Raising rates is fine as long as there are programs to help low income users.
- Include environmental consequences with plans.
- Prioritize environmental responsibility, understand reliability/economic impacts. Gain multiple perspectives on future cost, carbon, other impacts (3rd party opinon)
- It's always a delicate balance between innovation and cost effectiveness. We are very interested in renewables.
- Reducing carbon emissions is critical in any plan.
- 1) Empower users to change houses and habits. 2) Develop innovation partnerships with universities.
- The clock is ticking. Change, innovation, experimentation, are needed now and intothe future or the future is in question.
- Engage public education so we can contribute to solutions with everyday changeswe can make in our lives.
- From our table, there was a consensus that more study of successful non-carbon models be researched to bring those successes to achieve the 2030 goal. Bring in some of those agency reps and get their insights.
- #1 Achieving 100% non-carbon objective by 2030.

- They need to support their claims/projections with information, data, analysis, explanations- in depth
- Actively pursue collaborative work with local communities to decrease electricityusage, increase solar...
- Everyone at our table is prepared to do more to achieve lower carbon based fuel.
- The issue of a non-carbon energy future is very complex and decisions need to be based on sound reasoning and not purely an emotional reaction.
- Goal for 100% ASAP with consideration of vulnerable communities.
- Portfolio #3 is the ONLY acceptable way forward.
- Be open and transparent. Be carbon-free as soon as possible.
- PRPA is too conservative, need to be more assertive to achieve goal.
- An aggressive but pragmatic approach to the non-carbon transition is ideal.
- The municipalities, the PRPA board, and PRPA committed in 2018 to zero carbon by 2030. Just do it. Honor that commitment.
- There is no time to lose to reduce emission from coal in an attempt to mitigate or reverse climate change.

Answers from Loveland Event

- System reliability is by far the most important factor, because if you retire base load capacity too fast to accommodate too much renewables you will have a major catastrophe with a result of power outages
- Reliability
- Reliability!!! Keep up the good work
- We must have move forward decisively on getting close to 100%. The black andwhite contrast from 2-3 was unfair. A 2.9 would have been 1/2 the cost of #3
- I'm impressed that PRPA is able to achieve option #2 and believe strongly that should be the new baseline while still viewing 100% renewable energy as the ultimate goal. Alyssa also mentioned incorporating cost effective aspects of option 4. I think this should always remain the goal while keeping reliability/cost in mind.
- The impact on human health, air quality, water quality, and overallenvironmental impact from cradle to grave needs to be included in portfolio data. (Mining coal,, fracking gas, pollution...)
- Don't forget reliability and cost
- Must consider effects on increases to those who may not be able to afford it
- More support for option 2. Kaitlyn and Avery- Very Good!
- Because we do not know how fast technology (ie battery storage) will develop w should have goals that may have to be adjusted
- Prioritize environment and reliability concerns over cost
- The 2030 goal of 100% was approved by all 4 cities and PRPA 4 years ago. Don't go back.

- Health concerns need to be part of the discussion. The four options did not recognize public health.
- We should definitely keep moving towards a non-carbon emitting electrical system
- Option #3 was my preferred option
- We need both reliability and 100% renewable. Incentives for making it affordable.
- We need to stop burning carbon sources ASAP. We need to consider social/health costs in all modeling.
- Thank you for listening. Please reduce fossil fuels even if it costs more. Have faith in increasing technology.
- There should never be any option considered that impacts reliability
- Must go renewables now!
- Pull in solar and wind from 2029-2030. Look at other options to expensive batteries.
- That we still need to move forward with 100% renewable by 2030. And I believe this is doable, if not today by 2030.
- No option 3
- Reliability is most important

Online responses

- Let's set interim goals over the next decade to set ourselves up for achieving 100% non-carbon - or darned close - by 2030.
- That the BOD is exploring a mix of options and has not completely abandoned the 2030 goal.
- Don't abandon your status as one the most reliable, cost-effective and cleanest power providers in the country in pursuit of hypothetical folly.
- PLEASE emphasize clean air and global warming as the highest priorities...for myself and my children!
- Disappointing
- It's simple, we set a goal and our plans should align with that goal. We all know it's going to be hard and some contingencies and trade offs will likely be necessary. But those decisions will be made as things come into greater focus going forward
- Finish what has been started with wind/solar, Convert coal to gas ASAP for Gap Filling & Growth & Sales, Explore Gen 4 Nuclear for the Future.
- If you want real answers to complex issues, ask questions that don't lead the listener to your preferred answer.
- The most important this is what I didn't hear -- residential rooftop solar for less.
- Staying with the goal of 100% non-carbon electricity by 2030 and forcing their staff to find the way. This would be greatly facilitated if the Board and the staff would take seriously the concerned citizens who, using their considerable expertise on the subject, have been attempting to encourage and assist PRPA in this effort. It is very likely that these concerned and dedicated outside resources could be of enormous help and would

considerably improve the accuracy and value of information that has been provided to them by their outside contractor.

- commitment to reliability and keeping costs as low as possible
- That meeting the 100% goal is very important -coming as close as possible is what I want for Fort Collins and to transition off carbon emitting sources.
- More than one utility in the US has experienced significant difficulty trying to deliver affordably priced electricity by implementing "new or novel technology" with an unproven track record. Actions generally resulting from great hubris and leading to significant cost overruns with price increases. Is that the plan here? Whom backs it with capital if it doesn't turn out as planned?
- Reliability and affordability is key, don't be beholden to emotional goals like 2030, PRPA has always been a responsible planner, stay that way and don't get swayed by emotional unrealistic arguments to achieve an unachievable goal of 100% noncarbon by 2030.
- I believe that PRPA is over-stating the risks and costs of transition. The PRPA should hold staff accountable for meeting the goals set by the four cities. If they fall slightly short of 100% RE by 2030. that is MUCH better than lowering our goals now. The Board should set aggressive interim goals to stay on track for 2030 and make adjustments as required by technology and market conditions.
- As you consider my comments. Note I am aware of the fact that, here, we are focused on Platte River Power Authority; However for me -This is a collective issue as such collaboration is critical. From my perspective we are beyond the point of maintaining the stasis-quo. Advancements in technology should be advanced, utilized and developed cooperatively and simultaneously. It is my impression that if we, globally, spend time and money on the advancements in technology (science) Research and Development (R&D) we would advance carbon free energy at a faster rate than whatwe are currently experiencing.
- The costs of investment and higher utility costs should pale in comparison to the environmental damage that would happen if we do not act. Keep in mind the externalities of continuing to use carbon intensive sources of energy and the argument becomes much easier.
- Responding to climate disasters (like floods and fires) will cost a lot, the more we can mitigate climate change the better off financially we'll be in the long-run.
- We are in a climate emergency and need to act like it. We must move quickly to carbon-free energy and the cost is worth it.
- PRPA is serious about dramatically reducing GHG emissions. They should look for emissions reductions beyond traditional electricity by electrifying transport and heat loads. Area governments should look at limiting population growth.
- Our responsibility to do all we can to combat the climate crisis.
- The risks of not acting aggressively to curtail climate change is a MUCH higher risk than the real risks of reduced reliability. Just because we do not know how to solve a problem

today does not mean we won't be able to tomorrow. Goals and commitments drive us to find solutions.

- Cost and reliability impacts.
- That a little NG is a powerful lever. That picking a 100% goal needs to be framed in an absolute tons of C02 way to help make the right choice.
- Please consider climate change. The cost there can't be fit into the models but it sure will affect us all.
- Near 100% GHG emission reduction - coal free - by 2030 is paramount.
- The most important thing I've read is the commitment of PRPA to reduce its reliance on fossil fuels. Three of the four portfolios outline alternatives of variable effectiveness and feasibility to achieve the goals of PRPA.
- Please work toward making portfolio three work for our communities.
- You already know what I'll say: It's the total GHG emissions that matter. Over time. From everywhere. What can we do to reduce the total? As soon as possible.
- From personal experience in nuclear power generation as my background, and interest in my grandkids health and quality of life for future generations and the planet with the climate emergency, the process to examine the research of the IRP has been informative and worthwhile. Our past use of fossil fuel energy consumption has been harmful and wasteful; the costs of such use has been ignored and the burden placed on future generations. We must make every effort to move to renewables as quickly as possible in the timeframe mentioned.
- Climate change is a global issue, and thus must be approached this way accordingly. Reliability is key and thus a natural gas bridge may be needed while technology evolves. Get off coal though!
- It is quite possible that the disposal of solar panels, defunct windmills and these gigantic storage batteries will be the next big toxic waste problem. Please factor this into your costs. Thank you.
- 1) This process excludes detail or analysis regarding how the Western Energy Imbalance Market may impact our grid and the four placemat scenarios. The extent to which WEIM regional market will impact our grid's reliability and cost cannot be understated, and therefore its exclusion appears to be a critical error in this process' design. When will WEIM be included in the IRP process? Will the IRP be repeated next year including WEIM? 2) Given the exclusion of the energy markets, can you confirm that no near term resource decisions are going to be made through this process?
- Don't be afraid to ask residents to help you achieve goals by pitching in funds for low income users or increasing efficiency at home. We're all in this together

Appendix 2

Full data from end of event surveys - This information includes demographic questions from both the events and the online survey and evaluation questions from the events.

1. How would you rate your overall satisfaction with today's forum?

Answer	%	Count
Very Dissatisfied	2.65%	3
Dissatisfied	3.54%	4
Neutral	8.85%	10
Satisfied	52.21%	59
Very Satisfied	32.74%	37
Total	100%	113

2. Do you believe that you learned enough at this forum to have an informed opinion about PRPA's energy future?

Answer	%	Count
Definitely Not	3.57%	4
Probably Not	11.61%	13
Unsure	16.07%	18
Probably Yes	41.07%	46
Definitely Yes	27.68%	31
Total	100%	112

3. How well did the forum perform in encouraging you to weigh the most important arguments and evidence concerning Platte's Energy Future?

Answer	%	Count
Very Poor	0.88%	1
Poor	7.89%	9
Adequate	15.79%	18
Good	40.35%	46
Excellent	35.09%	40
Total	100%	114

4. How effective was the forum in encouraging you to consider the values and deeper concerns of Platte River's energy future?

Answer	%	Count
Very Poor	1.79%	2
Poor	3.57%	4
Adequate	25.00%	28
Good	43.75%	49
Excellent	25.89%	29
Total	100%	112

5. **Did you change your opinion on PRPA's energy future as a result of the discussion, or are your views mostly the same?**

Answer	%	Count
My views are entirely the same as before	20.54%	23
My views are mostly the same as before	45.54%	51
My views changed somewhat	26.79%	30
My views changed a great deal	5.36%	6
My views changed completely	1.79%	2
Total	100%	112

6. **Would you say you had sufficient opportunity to express your views today?**

Answer	%	Count
Definitely no	0.00%	0
Probably no	0.00%	0
Unsure	1.74%	2
Probably	28.70%	33
Definitely yes	69.57%	80
Total	100%	115

7. **When others expressed views different from your own today, how often did you consider carefully what they had to say?**

Answer	%	Count
Never	0.00%	0
Rarely	0.00%	0
Occasionally	5.31%	6
Often	43.36%	49
Almost Always	51.33%	58
Total	100%	113

8. How often do you feel that other participants treated you with respect today?

Answer	%	Count
Never	0.00%	0
Rarely	0.00%	0
Occasionally	1.72%	2
Often	14.66%	17
Almost Always	83.62%	97
Total	100%	116

9. How often did you have trouble understanding or following the discussion today?

Answer	%	Count
Almost Always	3.48%	4
Often	5.22%	6
Occasionally	14.78%	17
Rarely	38.26%	44
Never	38.26%	44
Total	100%	115

10. **What best describes your racial or ethnic background? Check as many as apply.**

Answer	Meeting Count	Online Count	Total	%
African American	0	0	0	0.00%
Asian American	2	0	2	1.27%
Hispanic or Latinx	5	1	6	3.80%
Native American	2	0	2	1.27%
Native Hawaiian/Pacific Islander	0	0	0	0.00%
White, non-Hispanic	101	32	133	84.18%
Other	1	0	1	0.63%
Marked choose not to answer	6	2	8	5.06%
Not marked	5	1	6	3.80%
Total	122	36	158	100%

11. **What is your current age?**

Answer	Meeting Count	Online Count	Total	%
Under 25	1	1	2	1.32%
25-34	7	5	12	7.95%
35-44	9	2	11	7.28%
45-54	15	2	17	11.26%
55-64	22	15	37	24.50%
65-74	45	9	54	35.76%
75+	16	2	18	11.92%
Not marked	0	2	2	1.32%
Total	115	36	151	100%

What is the highest level of education that you have completed?

Answer	Meeting Count	Online Count	Total	%
Less than high school graduate	1	0	1	0.86%
High school graduate/GED	2	0	2	1.72%
Vocational/technical school	3	0	3	2.59%
Some college	7	0	7	6.03%
College graduate	29	7	29	25.00%
Graduate or post-college school	74	29	74	63.79%
Total	116	36	116	100%

Event attended

Answer	Count	%
Longmont	33	21.02%
Estes Park	48	30.57%
Loveland	35	22.29%
Online survey	41	26.11%
Total	116	100%

What is your gender?

Answer	Meeting Count	Online Count	Total	%
Male	60	20	80	56.34%
Female	48	11	59	41.55%
Gender Queer	0	1	1	0.70%
TBD	0	1	1	0.70%
N/A	1	0	1	0.70%
Total	109	33	142	100.00%

Note: Participant wrote in their own answer to this question.

What is your household income?

Answer	Meeting Count	Online Count	Total	%
Less than $20k	4	2	6	4.29%
$20-39,999	6	3	9	6.43%
$40-59,999	19	3	22	15.71%
$60-79999	17	15	32	22.86%
$80-99999	19	5	24	17.14%
over 100k	40	7	47	33.57%
Total	105	35	140	100%

What type of residence do you live in?

Answer	Meeting Count	Online Count	Total	%
Single family home	107	35	142	92.21%
Mobile, modular or manufactured home	0	0	0	0.00%
Apartment, townhouse, duplex or condo	9	3	12	7.79%
Total	116	38	154	100%

Do you own or rent your home?

Answer	Meeting Count	Online Count	Total	%
Own	110	32	142	92.81%
Rent	6	5	11	7.19%
Total	116	37	153	100%