CenterPoint 2022 IRP
1st Stakeholder Meeting Minutes Q&A
August 18, 2022, 9:30 am – 3:30 pm CDT

Richard Leger (Senior Vice President, CenterPoint Energy) – Welcome, Safety Message, Introduction to CenterPoint Energy, Personal background and CenterPoint team introductions, Updates and Goals for this 2022/2023 IRP

Matt Rice (Director, Regulatory and Rates, CenterPoint Energy) – Discussed the meeting agenda, guidelines for the meeting, discussed directors report feedback, and the proposed 2022/2023 IRP and stakeholder process.

- Slide 5 Generation Transition Timeline:
  - Question: I noticed the retirement date for Culley 2 has changed from 2023 to 2025.
    - Response: Over the last year, capacity market prices in MISO have increased significantly. To keep that capacity value for a plant that doesn't run a lot, we decided to extend it for 2 years.
  - Follow-up: You may extend the agreement with Warrick 4 from 2023 to 2025?
    - Response: We do not have an agreement that runs past 2023 currently.
  - Question: Are you planning to evaluate the cost of the CTs compared to another alternative based on the new federal tax credit in the IRA?
    - We intend to move forward with the CTs. We have the approval from the IURC and are awaiting approval from FERC to move forward.
- Slide 12 2022/2023 Stakeholder Process:
  - Question: Final modeling results will not be done by March 31st. There is a wide gap between the last stakeholder meeting on March 14th and the filing date [June 1, 2023]. Can the portfolio change between those two dates? I'm worried modeling results based on the dates posted might not be done before the final meeting.
    - Response: We don't expect any changes to the portfolio. It takes time to do the analysis and get thoughts on paper. We plan to share the modeling results as soon as possible.
- General Section Questions:
  - Question: What percentage of the Cully ELG compliance work has been completed?
    - Response: It will be in service by March 1st of next year. Probably over 50%.
  - Correction by CenterPoint: Correction. We are negotiating for wind. We currently have not filed for wind, but plan to file in the very near future.

Matt Lind (Director, Resource Planning & Market Assessments. 1898 & Co.) – Discussed Objectives & Measures and gathered stakeholder feedback.

- Slide 16 IRP Draft Objectives and Measures:
  - Question: On your slide, you said measured in carbon dioxide. How will that be measured just CO_2 or CO_2 equivalent?
    - Response: Yes CO_2 and CO_2 equivalents are two possible metrics. Last time we used life cycle CO_2 emissions but the results were very similar to just tons of output so we have decided to move away from life cycle emissions.
  - Question: If the CO_2 intensity is similar to absolute tons of CO_2, why are you changing that metric? Is the appropriate measure not the total tons of CO_2 emitted into the environment?
    - Response: There is an absolute value, the metric was chosen based on intensity as we have different load demand assumptions in a particular portfolio. But that is good feedback and something that we will take into consideration.
  - Question: Are you going to measure thermal accreditation on a UCAP basis or are you going to attempt to translate the seasonal accreditation methodology into the accredited value of your thermal units?
    - Response: It is something we will look at, consider, and evaluate. We do intend to accredit all resources, thermal and otherwise, on a seasonal basis.
- General Section Questions:
  - Question: Will demand response be a part of the portfolio plans? Will CenterPoint expand DR to commercial customers?

        - Response: Demand response will be discussed in further detail as we move forward in the process. We are looking at a combination of direct load control and rate programs. This allows us to have customers control different rates at different periods of time. We are looking to fully transitioned to smart thermostats by 2029.
    - Question: What are your plans if FERC doesn't approve the [natural gas] pipeline [needed for the new CTs]?
        - Response: All portfolios assume future FERC approval. If it is not approved, we will refer to the IRP process to guide us in the next steps. The plan is to move forward with the CTs.
    - Question: Is the CT totally dependent on that gas pipeline being approved?
        - Response: There is not enough gas at the site today. We will need the gas pipeline for the CTs to operate. There is a lot of other equipment at that site, such as the substation and the interconnect rights, that make that site favorable for the CTs.
    - Question: What are the new and different technologies in the future coming beyond what we already have?
        - Response: Some of the future technologies both on the demand and supply side will be touched on later in this presentation. The technology mentioned is new in terms of the impact it will have to the supply side. Not necessarily that the technology itself is new.

Kyle Combes (Project Manager, Resource Planning & Market Assessments, 1898 & Co.) – Discussed the 2022 IRP modeling software, EnCompass.

- Slide 19 What are Encompass' Capabilities?
    - Question: Can Encompass model other types of storage beyond chemical storage (e.g., battery)?
        - Response: Yes. It's not specific to just chemical battery storage. Other options may be modeled with the correct input assumptions. Variable costs, capital costs, etc.
    - Follow-Up: Why did the CAC suggest switching to EnCompass?
        - CAC Response: We have some experience licensing several other software's used by MISO. We found that if you are looking at someone else's modeling files, it is important you can digest those modeling files, and understand the constraints to those inputs. Encompass models can be input and exported in an Excel format. Several other models don't have that capability. 1898 and Co. also licenses Encompass, so it was beneficial to use that as the modeling software.
    - Question: Can you compare the gas plant cost to the other technologies mentioned this morning?
        - Response: Based on comments and discussion today, yes, the CTs have been approved and will be part of the plan for the CenterPoint portfolio. We did not suggest that the CTs be built in an alternate location.
- General Section Question:
    - Question: If the modeling files are available in advance, can they be seen earlier by those who have signed the NDA?
        - Response: We will take that into consideration and provide those as soon as we can. [The expected data release schedule is on slide 10.]
    - Question: I would like to formally request that you run the portfolio without the gas turbine to determine least cost.
        - Response: The request has been noted.
    - Question: Why don't you go ahead and evaluate the cost now without the CTs, so you don't have to rerun the evaluation?
        - Response: We will take that into consideration. We should have an answer from FERC later this year [or early next year] regarding the pipeline.

Drew Burczyk (Consultant, Resource Planning & Market Assessments, 1898 & Co.) – Discussed the Request For Proposals (RFP) methodology, scoring, role, and provided high level statistics for CenterPoint's RFP.

- Slide 26 Preliminary RFP Statistics:
    - Question: Would you be getting updated numbers on the people that bid solar?
        - Response: We are still digesting the information to see how the bill [Inflation Reduction Act] impacts our current plan. By the second stakeholder meeting we should have more clarity on how the bill impacts pricing.
    - Question: How will the bids be incorporated into the IRP modeling? And do you know yet how/if they will be used as the basis for future costs?

        - Response: We will have the cost curve assumptions ready for the next stakeholder meeting. We do have RFP responses to use as a reference for the next few years to use in IRP modeling.
    - Question: Are you surprised on the breakdown percentage for RFP bids (especially storage)?
        - Response: We are not surprised by the type of bids we have received. Over the last few RFP's, there have been more storage projects in the MISO interconnection queue, so it makes sense that we would be seeing more storage proposals now.
    - Question: Is the nuclear capacity existing or new build?
        - Response: The nuclear bid is an existing resource.
- General Section Questions:
    - Question: Given the IRA is offering both PTC and ITC which includes storage, when looking at the modeling, will you be assuming the 30-40% cost savings in certain communities outlined in the act?
        - Response: We are still processing the potential impacts of the new legislation. We will have more clarity in the next meeting on how we plan to account for those updates.
    - Question: Will we be able to access the bids for those of us with NDAs?
        - Response: Yes, the plan is to follow a similar process as the 2019 All-Source RFP.
    - Question: In Encompass, are you planning to model renewables as a project or as a resource?
        - Response: We haven't decided on any of the modeling just yet. Any input or feedback that you may provide, we will consider.

Matt Lind – Discussed MISO Updates, Resource Adequacy and key functions, and updates for FERC 2222.

- Slide 34 MISO Zone 6 Capacity Prices:
    - Question: Can you expand on the MISO capacity chart?
        - Response: The chart shows historical numbers of the MISO capacity auction and for the current planning year. The chart shows the historical clearing prices, or the price of capacity purchased specifically for MISO zone 6. The capacity price is associated closely with the demand at that time i.e., market driven. High prices reveal the need to add more capacity to the market.
    - Question: These Peaker plants seem large for the local need. Would CenterPoint be a provider to the grid during these times of high prices? Who would benefit from these high prices, the customers, or the company?
        - Response: This is a capacity price, not a function of energy sales. The CTs were added to meet CenterPoint's own capacity needs, not necessarily to sell into the market as surplus. Different resources and technology types have different characteristics. Seasonally, we look at how those technologies perform in different conditions. Every technology type will receive its own capacity credits, and CenterPoint must meet that capacity demand in all conditions.
- General MISO Questions:
    - Question: In terms of the FERC 2222, do you all have a sense of an approach that you would like to take or are likely to take? Is the question about the adoption rate of those technologies or is it about the things that CenterPoint would do internally to promote the adoption of those technologies and the tradeoffs of those approaches?
        - Response: Ultimately, it's projecting the adoption rates of those technologies and the impact on the load forecasts. The impact of the adoption on portfolios considering how quickly those will come into effect and how quickly the demand will have to be met with those resources coming online. Thoughts and feedback are welcome.
    - Question: Does the model have capabilities to model the FERC 2222?
        - Response: We can see it possibly affecting the load forecasts. We could model the impact based on different assumptions.
    - Question: I wanted to bring attention to an article on vertical solar panels that are bi-facial. They require less battery storage and capture electricity for long periods of the day. Just wanted to bring it up and have CenterPoint look at it as an option.
        - Response: Please send the article to irp@centerpointenergy.com

Scott Duhon (Director, Environmental Compliance & Policy, CenterPoint Energy) – Discussed environmental regulations and policy.

- Slide 41 NO_X Ozone Season Allowances:
  - Question: To calculate how much it would cost to comply with this, would you just multiply the tons purchased by the purchased cost per allowance?
    - Response: Yes.
  - Follow-Up: For 2022, we're looking at over $22M for NOx compliance?
    - Response: As you can see, as time has gone on, allowances allocated to CenterPoint have gone from 1,381 to 851. We have used our selective catalytic reduction equipment to reduce NOx as much as we can without causing other operational issues. With the high capacity factor this year, we project to be about 450 tons short on these NOx allowances. There is a short supply on the market. It is very expensive to purchase NOx allowances in the market.
  - Question: What does high costs of NOx mean regarding keeping Culley 2 online an extra 2 years?
    - Response: Regarding Culley 2, the unit doesn't run a lot due to the high costs. We will extend it through 2025 because we can hold it for capacity which limits the amount of capacity we have to buy on the market. This will help us reduce the cost to customers.
  - Question: Is there anything being done to hedge the cost of NOx allowance purchases? What is being done to reevaluate the cost of these units?
    - Response: To mitigate NOx emissions, we are injecting as much ammonia into our selective catalytic system. Additionally, when bidding these units into the market, accounting for the NOx price is included in our offer price.
  - Follow-Up: How are you currently recovering those allowance costs? Are those tracked and/or embedded in rates?
    - Response: The costs get recovered through the RCRA once a year.
- General Section Questions:
  - Question: Can carbon emissions be also measured in their absolute tonnage?
    - Response: CenterPoint looks at absolute tonnage.
  - Follow-Up: On your website, it says that you take the Paris commitment under serious consideration. Is it talking about carbon intensity, absolute tonnage emissions, or what? Is this part of the planning that you use?
    - Response: When we look at net zero, we look at absolute tonnage. We have modeled the retirement of all coal by 2035. This is an assumption. Since we are moving from coal to primarily renewables, most of the offsets aren't going to the generation side. We aren't anticipating significant need for offsets to the generation emissions.
  - Question: Do the combustion turbines have lower NOx than the coal units?
    - Response: Yes.
  - Question: What is the current retirement on Culley 3?
    - Response: This will be evaluated through the IRP.

Jeffery Huber (Principal, Energy Efficiency, GDS Associates, Inc.) – Discussed Market Potential Studies, Energy Efficiency and Demand response.

- Slide 54 DR Analysis – Programs Included
  - Question: Does CenterPoint have any Demand response programs for residential customers?
    - Response: We do have the legacy smart saver switches. We have a couple of residential demand response programs such as the legacy direct load control program. In 2016, we implemented a pilot program and rolled that out into a smart thermostat program. The goal is to phase out the load control program and ramp up the "bring your own thermostat" program.
  - Follow Up: Recommends implementing residential rate programs [critical peak pricing, TOU, etc.] sooner. Haven't you rolled out the smart meter program?
    - Response: In terms of AMI systems, the meters are out in the field. We are working on incorporating the legacy meter data management system into the CenterPoint system. The system is not ready yet.
- General Section Questions:
  - Question: In the future, will CenterPoint allow users to participate in the program without pre-cooling their home?

        - Response: The intent with the pre-cooling option is to make the customer more comfortable prior to a demand response event. The pre-cooling is only available with certain brands of thermostat.
    - Question: When you are looking at the achievable market share for energy efficiency, would you consider 50-100% rebates on appliance upgrades? Will that impact overall effectiveness and adoption?
        - Response: The analysis was done prior to the IRA passing. The low to moderate income rebates could be affected. We generally model them with high incentives. In the past when there have been similar types of tax credits, we have modeled them in a similar way.
    - Question: How do you determine these incentives?
        - Response: We did research that looked at customers' willingness to participate at certain levels. That research asked customers, both residential and non-residential, what their likelihood would be to participate in this program. We are in the process of evaluating the demand response incentives to get as much participation as possible.

Michael Russo (Senior Forecast Consultant, Itron) – Discussed historical trends, economic drivers, industry trends, and portfolio forecasts.

- Slide 63 End-use Intensity trends:
    - Question: How were you able to determine an increase in the forecast of energy intensity in the residential sector?
        - Response: The total decline in energy intensity from 2010 to now has been in lighting. In the energy outlook in 2022, there were no major improvements in end use efficiency that would change the graph.
- Slide 64 Electricity Prices:
    - Question: Regarding electricity prices, does it matter what the absolute rate is, or does it just matter what the rate of change is? How elastic is demand to price?
        - Response: For the regression model, the important factor is the percent change. Electricity is inelastic: people don't respond that much to changes in electricity prices.
- General Section Questions:
    - Question: Can you help me square the fact that residential use has been declining over time, but intensity appears to be increasing over time?
        - Response: One of the major savings from 2010 until now has been lighting. Lighting is at its lowest point basically now. The one end use that is increasing is the misc. category.

Kyle Combes – Discussed portfolio resource options, both new and existing.

- General Section Questions:
    - Question: Can you talk more about a conversion from CTs to CC? Would that require another Certificate of public convenience and necessity (CPCN)?
        - Response: Yes. The CTs would be the same. You could add heat recovery steam generators. Peaking gas turbines are mainly a capacity resource with a less efficient heat rate, but less expensive on capital investment. Yes, it would require another CPCN.
    - Follow-Up: Why would you pursue a new joint agreement until 2025 for Warrick?
        - Response: We are short on capacity in the 2024/2025 planning year [until the CTs come online]. Our customers will be vulnerable to the capacity price at that time. If we can reach a fair agreement, we can avoid paying for capacity until some of those other units come online, and ultimately, save our customers money.
    - Question: Is this a pre-screening list or the post-screening? Does this mean that new coal passed the screening?
        - Response: No pre-screening has been done at this time. We have not determined if we will do a LCOE or other pre-screening at this time. Usually we would only pre-screen in specific technology groups where there are multiple options, if there were several different peaking gas technologies for example.

Matt Lind – Discussed reference case inputs and scenarios.

- Slide 80 Natural Gas (Henry Hub) Forecast:

- Question: Based on an internet search, the Henry Hub natural gas price today is $9.23/MMBtu. The graph does not reflect this number. Can you explain?
  - Response: The pricing is the 2022 average [consistent with the annual datasets shown]. It is not today's Henry Hub pricing.
- Question: Are the graphs nominal or real?
  - Response: The forecasts are in nominal dollars.
- Question: Expressed concern about forecasts.
  - Response: We are living in a volatile time from normal gas pricing. Going back 10-15 years prices were in the $8/MMBtu range. We have seen price fluctuations before, and there is uncertainty in the price assumption [as with most forecasts today]. We will do a probabilistic stochastic analysis to capture volatility, [and we will update with vendor forecasts as they are updated.]

Open Q&A Session

- Question: Does CenterPoint want to add fuel risk as an objective and measure?
  - Response: NPV largely captures fuel cost and risk inherent to a portfolio. We will consider it.
- Question: What is the implication of the economy assumption for the modeling?
  - Response: The assumption is not a direct input into the model, the economy assumption indirectly or directly effects other metrics across the scenario. But generally, load for example is one that is more directly correlated to the economy.
- Follow-Up: What tool are you using for modeling assumptions?
  - Assumptions will be modeled similar to previous IRPs.
- Question: How much is the new law going to impact the new modeling relative to methane gas?
  - Response: We will be looking into the impacts of the new legislation and provide updates in future scenarios.
- Question: Can we start the process of sharing data to make an interactive process?
  - Response: We will take the feedback into consideration moving forward.
- Question: Do you plan to talk about the metrics at the next meeting or are those decided?
  - Response: We've heard feedback on carbon intensity and other metrics, so we will go back and reassess.