RELIABLE ENERGY'S COMMENTS ON DRAFT DIRECTOR'S REPORT APPLICABLE TO INDIANAPOLIS POWER & LIGHT'S 2019 INTEGRATED RESOURCE PLAN AND PLANNING PROCESS

Overview

Reliable Energy, Inc. (successor to the Indiana Coal Council) appreciates the opportunity to provide comments on the Draft Director's Report for Indianapolis Power & Light's (IPL) (now AES Indiana) 2019 Integrated Resource Plan (IPL 2019 IRP).

Reliable Energy believes that the Draft Director's Report highlights a significant problem between the theory and reality of what is occurring in Indiana concerning Indiana regulated utilities' reliance upon the Commission's review of integrated resource plans (IRPs).

By statute and Commission rules, utilities are required to submit an IRP to the Commission no less than every three years. Ind. Code § 8-1-8.5-3(e)(2) and 170 IAC 4-7-2. A utility must provide an IRP that assesses various demand-side management and supply-side resources to meet future customer demand cost-effectively. Ind. Code § 8-1-8.5-3(e)(2).[1] By common practice, strongly encouraged by the Commission, utilities engage in a robust stakeholder engagement process in developing their IRPs. Once completed, a utility submits its IRP to the Commission, and stakeholders can submit comments. 170 IAC 4-7-2 and 4-7-2.2. The Plan and the stakeholder comments then go to the Director of the Commission's Research Policy and Planning Division for review. The Director issues a Draft Report, which is available for comment, and then a final report. 170 IAC 4-7-2.2. Per the rule, the Director's report is limited to commenting on the IRP's compliance with the IRP requirements and listing areas where the Director believes the IRP fails to comply with the requirements of the rule. 170 IAC 4-7-2.2(g). The Director's report may not comment on "the desirability of the utility's preferred resource portfolio; or a proposed resource action in the IRP." *Id*. This is reflected in the introductory paragraphs of every Director's report. For example, the IPL 2019 IRP Draft Director's Report states: "At this outset, it is important to emphasize that these are the utilities' plans. The Director's report ***does not endorse an IRP nor comment on the desirability of the utility's 'preferred resource portfolio' or any proposed resource action.***" (Draft Director's Report p. 1 (emphasis added)). In short, a utility should not construe the Director's report as a Commission approval of its IRP or its preferred resource plan.

However, as noted in the Draft Director's Report, the reality is different**. "Increasingly, Indiana's electric utilities are using IRPs as a foundation for their business plans.**" (*Id*. pp. 1-2 (emphasis added)). This has been the recent experience in docketed Commission proceedings. For example, in rebuttal testimony in Cause No. 45462, NIPSCO witness Patrick Augustine makes the following statements: "Overall, the Director's Report was complimentary of NIPSCO's approach to the IRP" (pp. 4-5); "I would emphasize that the Director's Report was

[1] A utility may also submit an IRP as part of a specific utility proposal, e.g. a request for a certificate of public convenience and necessity (CPCN) for new construction. Ind. Code § 8-1-8.5-3(e)(1).

particularly appreciative of how the integrated IRP-RFP process helped NIPSCO gain 'vast amounts of credible data on the cost resource alternatives" (p. 5); "the Commission has generally been complimentary of NIPSCO's IRP" (p. 6); and "the Commission lauded NIPSCO's 2018 IRP" (*Id*.). Taken together, these statements imply that a positive Director's Report is tacit approval of a utility's IRP or preferred resource plan, which can be used as a precedent to support the prudency of future resource actions. Yet, in reality, and consistent with the statute, the Director's Report on the NIPSCO IRP was not a full-throated endorsement and contained both praise and criticisms.[2]

Although 170 IAC 4-7-2.5 requires a utility's resource actions to be consistent with its most recent IRP (or the utility must explain the reason for the difference), and a utility may submit an IRP as evidence in a formally docketed proceeding, this does not mean that the Director's Report on a utility's IRP is an approval of the IRP or the preferred resource plan. Rather, as the Director makes clear:

> The resource portfolios emanating from the IRPs should not be regarded as being the definitive long-term plan that a utility commits to undertake. Rather, IRPs should be regarded as illustrative of an ongoing effort that is based on the best information and judgment at the time the analysis is undertaken. The illustrative plan should provide off-ramps to give utilities maximum optionality to adjust to inevitable changing conditions (e.g., fuel prices, environmental regulations, public policy, technological changes that change the cost effectiveness of various resources, customer needs, etc.) and make appropriate and timely course corrections to alter their resource portfolios.

Recent events, such as the COVID-19 pandemic, the change in administration and immediate cancellation of gas pipelines on federal land, the Texas winter storm blackouts, and similar weather-related electric grid emergencies in Oregon, California, and Europe, show just how quickly conditions can change and the critical importance of the reliability and resiliency of the electric grid.

Given these realities, Reliable Energy believes the Director's Report must reflect the material concerns related to the preferred resource portfolio. Therefore, Reliable Energy respectfully requests that the Director's Report identify the modeling assumptions that are potentially problematic with IPL's (and with other utilities') current IRPs and make clear that ILP should consider such issues, and be prepared to address them in testimony, before it chooses to proceed with a CPCN filing based on the results of this IRP.

The specific requests are as follows:

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[2] Two examples follow:
NIPSCO has made some improvements in its load forecasting methodology. However, many of the Director's questions or concerns from previous IRPs are still relevant.
NIPSCO's energy efficiency evaluation process seems to be well reasoned, but more rigorous analytical treatment should be conducted for other Distributed Energy Resources in future IRPs.

- **Before filing a CPCN, IPL should estimate the transmission and distribution (T&D) system-related costs under all scenarios and incorporate such costs into its economic analysis.**

- **Before filing a CPCN, IPL should expand its analysis to include one or more carbon scenarios, with at least one tied to a net-zero 2035 Clean Energy Standard. This should include a shorter amortization period for any new fossil generation that lacks carbon capture.**

- **Before filing a CPCN, IPL should expand its deterministic modeling to incorporate coal and carbon price scenarios.**

In addition, Reliable Energy requests that the Director's Report contain a section that addresses concerns that have occurred subsequent to the preparation of the IRP, which could affect its result. Historically, the Director's Report has not focused on these matters given its position that the IRP is "a point in time" analysis that would be updated to reflect current circumstances when a CPCN filing is made. Given the Director's opinion stated above that utilities are increasingly justifying such filings based upon their IRP and the recent, drastic events that have impacted the electric power grid, Reliable Energy respectfully requests that the Director consider identifying assumptions that are also problematic in the context of recent events.

The specific requests concerning the Draft Director's Report on the IPL IRP are as follows:

- **Before making any CPCN filing, IPL should update renewable costs.**

- **Before making any CPCN filing, IPL should overlay its analysis with an analysis of transmission constraints in MISO Zone 6 to determine what type of reliability issues the weakness in the transmission system presents under each scenario.**

- **Before making any CPCN filing, IPL should incorporate gas delivery concerns in MISO, given recent natural gas pipeline cancellations and future difficulties in constructing new pipelines and laterals.**

- **Before making any CPCN filing, IPL should reexamine its cost assumptions for renewables given the recent experiences of NIPSCO and Vectren.**

Reliable Energy's comments are divided into two sections. The first section addresses the Director's comments on ICC's comments in the IRP. The second section addresses the factors that have become increasingly important/relevant to the strategies that utilities should consider. While historically, this latter group of concerns would focus on the next IRP, since IPL is likely

to come forward with a filing based upon this IRP, it is important for the Director to acknowledge factors now that could change the economics of the announced plan.

Director's Draft Report Comments on ICC's Comments

1. Failure to Include Incremental T&D Costs

Draft Report: The Director agreed that the IRP modeling process did not include incremental T&D investment in its consideration. The Director argued that such costs might be better considered in the context of a specific investment. While the Director concludes that "[t]his is something that is properly considered within a utility's weighing of the numerous risks and uncertainties the IRP is designed to help decision makers evaluate," the Director's report dismisses IPL's failure to do so as just one of the "extensive unknowns and uncertainties" in any analysis.

Reliable Energy: T&D costs could be estimated for various locations either by IPL or one of its consultants. For any major capital decisions, it is appropriate to include cost factors or contingencies for all significant items, such as T&D costs. The goal of the IRP process is to minimize the unknowns and uncertainties, not to dismiss those that appear too complicated to address with sufficient accuracy.

This omission is particularly problematic given the similarity of costs during the first five years of the IRP analysis. Given that IPL failed to include what would likely be high costs, the motivation must be considered. There are many costs that are difficult to quantify and may contain some level of uncertainty. The failure to estimate such costs, even on a qualified basis, seems not to be in the spirit of developing a robust resource plan.

The significance of expected T&D investments by all indications is massive. The following two of many examples document the expected materiality of such investments.

- AEP's capital plan includes $26.7 billion in transmission and distribution operations investments to continue updating infrastructure and implementing new technologies to benefit customers. During the same period, AEP plans to invest $2.8 billion in regulated renewable generation and $2.1 billion in competitive, contracted renewable projects.[3]

[3] https://aep.com/news/releases/read/5849/AEP-to-Focus-Investments-on-Energy-Grid-and-Renewables-Reaffirms-Operating-Earnings-Growth-Rate-of-5-to-7

- The transmission investment required to accommodate new renewable resources could reach $90 billion by 2030 and over $600 billion by 2050. These investments are in addition to the investments needed to maintain the existing transmission system and integrate renewable generation built to meet the existing load.[4]

2. Flawed Approach to Carbon Considerations

Draft Report: The Director argued that the use of a single carbon price forecast was an appropriate proxy for a carbon reduction plan because it was based upon a stochastic analysis and because at the time of the IRP preparation, there was a "high degree of certainty that there would be some form of carbon dioxide reduction." The Director concluded that "no one knows what the future holds but solid modeling and analysis, however imperfect, can help decision makers better understand potential implications of various resource actions."

Reliable Energy: Reliable Energy is in solid agreement with the Director's sentiment that solid modeling and analysis need to be performed to understand potential implications. This is precisely why this issue was raised. IPL used the same carbon price forecast as a proxy for carbon regulation in all cases except the one case, which assumed no carbon. Reliable Energy does not dispute that carbon scenarios should be considered. Reliable Energy objects to using only a carbon tax scenario as the proxy.

Carbon tax proposals are not new. As ICC noted in its comments, "(t)he failure over more than a decade does not support an argument that prudent planning should be based on a carbon price, even if it is just a proxy for other carbon regulations." In fact, ICC was restrained in its comments. Actually, carbon taxes have been proposed and rejected off and on for over 30 years.[5] For a variety of reasons, carbon taxes have not been legislated and are unlikely to be legislated. Therefore, using carbon taxes as the *only* proxy is inadequate.

ICC believes it made a compelling argument that if there was any momentum related to carbon, it is in the adoption of Renewable Portfolio Standards (RPS) and Clean Energy Standards (CES) by states. A Federal RPS is actually a smaller leap from where the U.S. is today than a carbon tax.[6]

[4] https://www.instituteforenergyresearch.org/the-grid/increased-electrification-and-renewable-energy-require-massive-transmission-investment/
[5] https://priceoncarbon.org/business-society/history-of-federal-legislation-2/
[6] https://www.c2es.org – 29 states have binding RPS, seven have CES, and another eight have voluntary programs.

The reason to look specifically at net-zero plans, rather than using carbon taxes as a proxy, is the modeling of net-zero plans or CES versus carbon tax plans will produce different results. If one looks at a net-zero 2035 plan or a CES, for example, the economics of new natural gas plants may collapse because they would need to be retired by a date certain or retrofit with carbon capture. A 2035 retirement, for example, would require a shorter amortization period in modeling. Rather than 25 to 30 years, a new gas plant would need to be amortized over 11 to 13 years, depending upon its start date. If modeled with carbon capture, the plant could stay on-line longer, but its costs would be significantly higher. This "modeling" approach would be more reflective of expected costs.

Said differently, to achieve the Director's stated goal to provide decision-makers with the potential implications of carbon plans on various resource actions, a broader range of regulatory options should be considered. While Reliable Energy agrees no one knows the future, Reliable Energy believes a decision justified with only one methodology, particularly one that is not likely to go into effect, does not provide a sufficient basis for such a decision.

Further, it cannot be ignored that IPL itself concluded that carbon price assumptions were the major determinant for the model analysis. Given the importance of carbon pricing to the IRP's outcome, Reliable Energy requests that the Director clarify that further analysis of various carbon scenarios is required.

3. <u>Inappropriateness of Reliance on 20-Year Net Present Values</u>

Draft Report: The Director agrees with ICC that it is important for the IRPs to provide annual revenue requirements, not merely a 20-year Net Present Value (NPV) of revenue requirements. The Director also notes that it is not surprising that the results for the first five years are relatively close between the cases.

Reliable Energy: Reliable Energy is comforted by the Director's finding that the inclusion of the annual revenue requirements is a helpful addition. However, Reliable Energy believes that the Director's report is ignoring the more significant conclusion related to the comparability of the first-five-year results, which is the benefit of deferring irreversible closure decisions given the significant unknowns concerning carbon policy, technology options, fuel prices, load (overall and its shape). Such deferral yields two significant benefits. First, it reduces the stranded costs of premature retirements, and second, it allows greater clarity around future investments.

As noted above, the comparability of costs in the first five years can be challenged on the grounds that IPL failed to include the associated T&D investment required in the first five years under the IPL preferred plan.

4. Relevance of Monumental Changes After the Preparation of the IRP

Draft Report: While the COVID pandemic started after the preparation of the IPL IRP began, the Director believes the resulting changes are likely to be covered analytically through the modeling or the retention of maximum flexibility in resource decisions.

Reliable Energy: Reliable Energy is concerned that the economic consequences incurred as a result of COVID-19 are outside the scenarios considered by IPL. Reliable Energy, however, completely agrees with the Director's point that it is important for IPL to "maintain flexibility in resource decisions," which extends to reconsideration of its preferred plan due to events after its preparation. This is consistent with the point made earlier that the filing of the IRP does not equate to approval of the IRP. It should be clear that any resource decision which requires regulatory approval cannot rely solely on the IRP for its justification without addressing recent events and corresponding changes in assumptions.

5. Impact of Electric Vehicles on Load Growth

Draft Report: The Director states, "the impact of EVs is quite small currently, and even very rapid growth in the number of EVs is likely to have a relatively small impact on load for several years."

Reliable Energy: ICC, in its initial comments, pointed out two concerns with IPL's limited consideration of EVs: the impact on demand and the impact on the shape of the load curve. ICC noted in its comments that IPL did not even bother to include medium- and heavy-duty trucks because its consultant concluded deployment of them "are at too early a stage to attempt to include them in a forecast." With all due respect to the consultant, at the time of the preparation of the IRP, there was sufficient information available in the marketplace to bracket potential penetration from which to develop a scenario.

After the preparation of the IRP and ICC's comments, the relevance of EVs has only increased. In January 2021, General Motors announced its plans to phase out vehicles using internal combustion engines entirely by 2035. Other manufacturers have similar targets. Also, in January 2021, President Biden announced plans to replace the U.S. government's fleet of

about 650,000 vehicles with electric models. Most recently, the U.S. Postal Service announced plans to replace part of its fleet with EVs.[7] While estimates vary, the expectation is that these conversions could increase electricity demand by over 25 percent and would flatten the load curve.

More directly related to this IRP, on March 2, 2021, IPL filed a petition with the Commission requesting approval of a comprehensive, $5.06 million EV-subsidization program, which would include subsidization of charger purchases and installations, an off-leak charging rate incentive, and the offering of an EV monthly subscription program through AES Indiana Motor. Cause No. 45509.

Reliable Energy certainly does not dispute the current EV-adoption numbers are low. Still, given the announcements and plans, Reliable Energy believes it would be appropriate to have a high EV penetration scenario in current 20-year IRPs.

6. Stochastic versus Deterministic Modeling

Draft Report: The Director believes IPL made a credible effort to inject stochastic modeling into IRP. This comment was in response to ICC's issues with the use of a single coal price forecast and a single CO_2 price forecast.

Reliable Energy: The difference between deterministic modeling and stochastic modeling is as follows: in deterministic models, the output of the model is wholly determined by the parameter values; in a stochastic model, the stochastic forecasts possess some inherent randomness. While stochastic modeling has some value in certain situations, stochastic modeling in no way replaces the need for or value of deterministic modeling. IPL apparently recognized this with its natural gas price forecasts in that three different forecasts were assumed. ICC's issue was that IPL did not recognize this for either its coal or carbon price forecasts.

Comments on Material Events After the Filing of the IRP

1. Indiana utilities are finding that the costs for renewables assumed in their IRPs are materially lower than the actual costs incurred when requesting approval of specific projects. In July 2020, NIPSCO petitioned for approval and associated cost recovery of (1) a Solar Energy Purchase Agreement between NIPSCO and Brickyard Solar, LLC ("Brickyard") dated June 30, 2020 ("Brickyard PPA"), and (2) a Solar Generation and Energy Storage Energy

[7] https://about.usps.com/newsroom/national-releases/2021/0223-multi-billion-dollar-modernization-of-postal-delivery-vehicle-fleet.htm

Purchase Agreement between NIPSCO and Greensboro Solar Center, LLC ("Greensboro") dated June 30, 2020 ("Greensboro PPA"), collectively referred to as the "Solar PPAs." Cause No. 45403. Cost information was not provided in the filings as it was deemed commercially sensitive. In September 2020, the Indiana Office of Utility Consumer Counselor (OUCC) filed testimony, which found not only were the resource costs higher than what had been assumed in NIPSCO's 2018, they were so much higher than the OUCC believed the IURC should consider whether the entire conclusions of the IRP be reconsidered. This case is particularly relevant as NIPSCO is relying upon a favorable review by the Director of NIPSCO's IRP.

Similarly, Vectren is currently experiencing a delay and significant cost overrun on a project for which it received approval. In May 2018, in Cause 45086, Vectren sought and ultimately received approval to construct, own, and operate a solar energy facility, referred to as the Solar Project. As part of the approval, Vectren is required to provide quarterly reports on the Solar Project construction. The report at the end of Q1 2020 indicated a significant problem and at least a four-month delay, which it alleged to be related to COVID-19, although, at the end of March 2020, there were limited COVID-19 impacts. Further, the EPC contractor withdrew.

The lessons from both NIPSCO's and Vectren's recent experiences are that the IRP assumptions regarding renewable pricing may not be achievable and that even an all-source RFP is not dispositive. Vectren, which had chosen to rely heavily on the results of the RFP, admitted as much. Vectren "found there are many difficulties with (the all-source RFP) process. The long timeframe makes it difficult for developers to hold their projects and pricing, plus other groups pick up many projects while the IRP analysis is being performed."[8] At a minimum, the Director's Report may want to reinforce the need for cost updates before any CPCN filing.

2. The 2020 elections have changed the calculus of what is likely to happen over the next four years. President Biden has a strong environmental platform, including a 2035 net-zero target for the power sector and the adoption of methane limits at the wellhead. To that end, President Biden has already re-joined the Paris Accord. It is increasingly more likely, a "net-zero" type or CES plan would be proffered and should be considered.

3. The 2020 elections also resulted in the Democrats taking control of the U.S. Senate, albeit by the narrowest of margins, i.e., 50-50, with the Vice President breaking the tie. All 50 Democrats are needed to agree to advance what some would consider "partisan" legislation. Included in the 50 is Senator Joe Manchin (D-WV), who is also the Senate Energy and Natural Resources Committee chairman. He has publicly stated his opposition to a carbon tax.[9] Therefore, the carbon tax is even less likely a proxy for the future.

[8] Volume 2 of the 2020 IRP
[9] https://www.eenews.net/stories/1063724469

4. Availability and security of natural gas delivery have become real concerns. On July 5, 2020, after multiple delays and court challenges, Dominion Energy and Duke Energy terminated the development of the Atlantic Coast Pipeline (ACP) related to ongoing delays, regulatory uncertainties, legal challenges, and ballooning costs.[10] Other pipeline projects are also being challenged, including the Mountain View Pipeline (MV), a joint venture with affiliates of EQM, NextEra, Con Edison, WGL and RGC, and the PennEast Pipeline. In addition, physical security is of concern with expanding risks facing pipelines, including the possibility of multiple, coordinated attacks with explosives. Cybersecurity is of equal or greater concern given the potential vulnerability of the computer systems used in their operation. The Transportation Security Administration (TSA), in collaboration with the Department of Homeland Security and the Department of Energy, has established a cross-agency partnership to conduct comprehensive pipeline cybersecurity assessments through the Pipeline Cybersecurity Assessment Initiative.[11]

5. In February 2021, MISO released its Renewable Integration Impact Assessment (RIIA).[12] MISO identified five risks in this report.

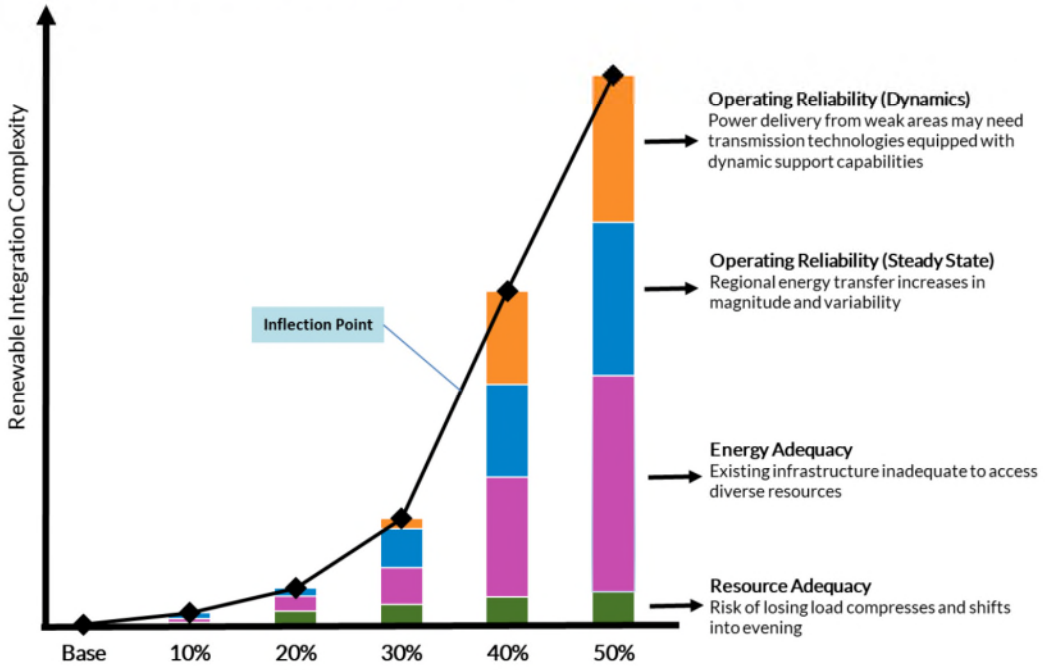
    a. Stability Risk – Renewable integration adversely impacts the grid's ability to maintain stable operations.
    b. Shifting Periods of Grid Stress – Periods of highest stress on the transmission system shift from peak demand periods to periods when renewables supply most of the energy.
    c. Shifting Periods of Energy Shortage Risk – The risk of not having enough generation to meet demand shifts from the historical times of peak power demand to periods when low availability of wind and solar is coincident with high power demand.
    d. Shifting Flexibility Risk – The changing resource mix reduces system flexibility.
    e. Insufficient Transmission – The current transmission infrastructure becomes unable to deliver energy to load.

6. In the RIIA, MISO graphically shows that it believes that the complexity and cost of renewable integration increase exponentially above 30 percent.

[10] https://news.duke-energy.com/releases/dominion-energy-and-duke-energy-cancel-the-atlantic-coast-pipeline
[11] https://www.cisa.gov/pipeline-cybersecurity-initiative
[12] https://cdn.misoenergy.org/RIIA%20Summary%20Report520051.pdf

Integration Complexity Increases Sharply after 30% Renewable Penetration

In the general sense, system integration complexity is the effort needed to plan for, support, and operate new resources as they connect to the grid. In the RIIA analysis, complexity is measured quantitatively to understand its relative magnitude when comparing across various drivers.



7. The storm and subsequent power crisis in Texas are still being investigating. The Energy Reliability Council of Texas (ERCOT) notes the worst-case scenario, a collapse of the entire grid, did not occur. That being said, there is no debate that the consequences and ultimate costs of the power crisis will be massive. Vistra, one of the generators in Texas, announced its related losses could exceed $1 billion.[13] Comparable losses are expected from other market participants. In addition, customers in this deregulated state who chose to let their power rates float with market prices have been adversely affected by the higher market prices.

8. What happened to natural gas prices is of particular concern. Henry Hub prices in February surged to an average of $5.15/MMBTU as freezing weather across the Midcontinent significantly tightened the supply-demand balance. Soaring heating demand and production losses due to freeze-offs yielded the largest weekly storage withdrawal since the polar vortex event in January 2018. A freeze-off occurs when the liquid inside wells, pipes, and valves freezes and clogs pipes.

9. Early reports suggest multiple failures from policy to planning to execution. While there will be ample opportunities to investigate the causes and costs of this event, the early take-aways

[13] https://www.ft.com/content/6a249066-0b0e-4da1-8310-e1c910ce0bc3

are the need for winterization, on-site fuel supply, resource diversification, and resiliency planning,

##NEED A CONCLUSION##.