



Oklahoma Gas & Electric 2024 Draft Integrated Resource Plan: Sierra Club Comments¹

Sierra Club provides the following comments on Oklahoma Gas and Electric’s (OG&E or the Company) 2024 Draft Integrated Resource Plan (IRP). OG&E has failed to sufficiently evaluate the retirement of Muskogee Unit 6 and Sooner Units 1 and 2 to ensure that Oklahoma customers are not burdened with propping up uneconomic units. In fact, despite having the capability to do so, OG&E has failed to optimize for economic retirement of these units or even to simulate multiple retirement dates outside a single case. Further, in that one case, OG&E’s own modeling shows that conversion of Muskogee Unit 6 and Sooner Units 1 and 2 to gas rather than coal is the least costly option to comply with the federal Good Neighbor Plan—as opposed to installing expensive emission controls or replacing with new gas generators. Moreover, OG&E has failed to fully reckon with risk of environmental compliance costs at Muskogee 6 and Sooner 1 and 2, particularly by failing to account for the new proposed rule pursuant to Clean Air Act Section 111(d). Finally, OG&E has overstated the cost of replacement solar, wind, and battery resources. OG&E must return to the drawing board and fix these flaws to determine the economically optimal date for retirement of Muskogee Unit 6 and Sooner Units 1 and 2 in light of their current lack of output (indicating economic issues), increasing age, and severe risk of heavy costs to customers due to environmental compliance.

I. The IRP Should Model Unit-By-Unit Coal Retirement to Plan for Affordable and Reliable Electricity for OG&E Customers. This is Essential in Part Because Available Evidence Indicates the Units Are Not Economic.

In any integrated resource planning process, it is essential that the utility assess the forward-going economics of its existing units given the anticipated costs and risks. Doing so allows for responsible resource planning that maximizes affordability and reliability for customers. But OG&E’s Draft IRP does not adopt these essential practices to ensure low bills and to keep the lights on for customers. With respect to its Muskogee and Sooner coal units, OG&E assumes an essentially indefinite life span. The Company only considers retirement prior to the 2040s in the one case where it models compliance with the Good Neighbor Plan.² This is so despite the

¹ Tyler Comings and Joshua Castigliero of the Applied Economics Clinic provided technical analysis and greatly contributed to the drafting of these comments.

² The “Energy Evolution” case includes accelerated coal retirements in SPP, but it is unclear whether that includes any of OG&E’s units. If it does not, then that case is problematic because it would assume that much of SPP’s coal fleet was susceptible to market forces that OG&E’s units were not.



increasing age of each of these units, posing increasing operational costs and reliability issues, and the increasing stringency of federal environmental regulation—most notably, in addition to federal ozone regulation and regulation of carbon pollution under Section 111(d) of the Clean Air Act.

Further, this one case was also limited by imposing one compliance option across the three coal units at a time—rather than engaging in a unit-by-unit analysis. This approach suffers from serious flaws in limiting all three units to a single compliance option. For instance, OG&E did not assess whether it would be optimal to convert Sooner Units 1 and 2 to gas while simultaneously retiring and replacing Muskogee Unit 6. Differences between the units—for example, in differential expected environmental compliance costs—may make one compliance pathway more affordable for OG&E customers for one unit, and a different compliance pathway more affordable for another unit. By assuming that all three units are situated exactly the same, without accounting for issues such as environmental regulatory risk and compliance costs that may vary by unit, OG&E has not conducted the rigorous analysis that prudence requires. Instead, the Company should have looked at the economics of each unit individually. In doing so, it should have included a realistic rather than optimistic look at the costs these units would face.³

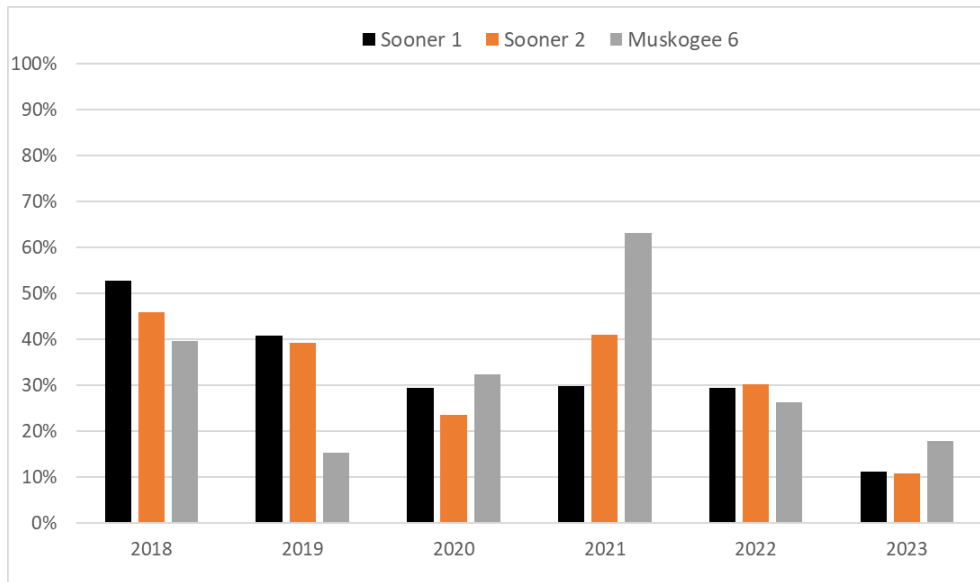
The capacity factor, which is a measure of how much of the units' maximum generation is used, is indicative of how economic the units are because SPP decides to commit and dispatch the units to minimize the costs in the RTO. As shown below in Figure 1, the units have run infrequently in recent years: each of the three coal units has operated, on average, less than one third of the time since 2018. In 2023, all three units operated at a capacity factor below 20 percent. Most recently, the units were effectively operating as peaking plants. In 2023, the Sooner units did not operate at all during the months of March, April or December.⁴

³ EIA Form 923 (generation) and Form 860 (capacity).

⁴ Id.



Figure 1: Capacity Factor of OG&E’s Coal Units (%)



For coal units with high fixed operating costs, this low level of operation is not economically sustainable and should be a wake-up call for a resource planner. If the units are not operating, that means either they are on an unplanned outage, they are on a planned outage, or they are uneconomic to operate in SPP. Moreover, as the units increase in age, they are likely to face increasing reliability issues and higher maintenance costs. Even absent impending regulatory compliance needs, these coal units should be assessed for retirement far earlier than OG&E’s current plans—including by or before 2030. The Company has the ability to conduct such an analysis with the tools at hand. We are pleased to see that OG&E is using Encompass for capacity expansion modeling in this IRP, but the model is not being deployed with its full capability. Capacity expansion modeling is a meaningful tool to evaluate new supply options and a tool for evaluating retirement options for existing resources. The Company could and should let the model decide on economically optimal retirement dates, a key feature of Encompass. At the bare minimum, it could and should test multiple retirement options at its coal units. Thus, existing and new resources can compete with one another to arrive at a cost-optimal portfolio. Otherwise, foreclosing the retirement options in the modeling, as OG&E has done, also forecloses the possibility of that lower-cost plan.



II. The IRP Must Fully Account for Environmental Regulatory Risk for OG&E’s Coal Units in Order to Plan for Affordable and Reliable Electricity for OG&E Customers.

OG&E’s IRP also suffers from failing to fully account for environmental regulatory risk for its coal units. OG&E has separated the Good Neighbor Rule into a separate case and has apparently viewed it as requiring only monitoring until all litigation has concluded. OG&E has not planned at all for compliance with proposed carbon regulation under Section 111(d). And, crucially, OG&E has not considered these costs *together*. It has not summed up the costs of environmental compliance for each unit to determine the degree of exposure to environmental regulatory risk and to use that information to inform the planning process and retirement decision-making. OG&E repeatedly stated in the IRP process that it “considers risks of specific regulations when they become final.” For the sake of OG&E’s customers, to ensure responsible resource planning, the Company must begin planning *before* finalization. Doing so will best position OG&E to act to protect affordability for its customers.

A. OG&E Must Account for the Crossroads for Its Coal Units Stemming from Current and Future Ozone Limits

Federal ozone regulation places OG&E’s coal units at a crossroads. In March 2023, the U.S. Environmental Protection Agency (EPA) finalized the Good Neighbor Rule. The rule is an outgrowth of the Cross State Air Pollution Rule (CSAPR). Both regulate smog-forming nitrogen oxide (NOx) pollution from power plants, including three of OG&E’s coal units: Muskogee Unit 6 and Sooner Units 1 and 2. The Good Neighbor Rule is projected to require substantial emissions reductions in NOx at each of these units: initial data from EPA indicated that the Good Neighbor Rule would cut Muskogee Unit 6’s ozone season NOx allowance from 782 to 227 tons in an illustrative 2026 NOx ozone season, Sooner Unit 1’s ozone season NOx allowance from 581 to 168 tons, and Sooner Unit 2’s allowance from 637 to 185 tons.⁵

As OG&E recognizes, the Good Neighbor Rule will require the Company to face a choice for each of the Muskogee and Sooner coal units: whether to install expensive selective catalytic reduction (SCR) technology, convert the unit to gas generation, or retire and replace the unit, limiting the replacement resource to new gas. The Company has only partially addressed the impacts of the Good Neighbor Rule or other environmental regulation requiring significant pollution reduction at the units. Most of OG&E’s modeling assumes that the Good Neighbor Rule (or any other environmental regulation that requires the imposition of SCR) does not exist. Only one modeled case does not ignore the Good Neighbor Rule (or other environmental regulation requiring significant pollution reduction consistent with an SCR).

⁵ EPA, *Unit-level Allocations and Underlying Data for the Proposed Rule*, available at <https://www.epa.gov/Cross-State-Air-Pollution/good-neighbor-plan-2015-ozone-naaqs>.



OG&E states that the requirements of the Good Neighbor Rule are “uncertain” because the Rule is currently involved in litigation.⁶ As a result, OG&E has not factored in compliance with increased pollution controls in line with the Good Neighbor Rule into either its “status quo” or “expected future” cases. OG&E has instead analyzed one “CSAPR future” case—an assessment of the potential for the Good Neighbor Rule to affect its coal units’ futures. This analysis is in fact required for the IRP, in a stipulation from the 2021 OG&E rate case PUD 202100164.⁷ **This was also the *only* case in this draft IRP where OG&E considered the possibility of ceasing coal operations earlier.**

B. OG&E’s Limited Analysis of the Good Neighbor Rule Shows that Converting the Coal Units to Gas is the Lowest-Cost Option, Rather than Retrofitting with SCRs.

In the single case in which OG&E modeled compliance with the Good Neighbor Rule, OG&E assumed that Muskogee 6, Sooner 1, and Sooner 2 would collectively and simultaneously (1) convert to natural gas; (2) install SCR; or (3) retire and be replaced with new gas generation. In other words, OG&E failed to conduct a unit-by-unit analysis—instead applying the same compliance pathway for all three units at once.

But within the limited framework that OG&E uses, the results point to conversion of Muskogee 6 and Sooner 1 and 2 as the lowest-cost option in most of the scenarios and sensitivities modeled, including OG&E’s own base case—shown in Table 1 with the lowest-cost option shaded in grey. In six of the nine cases modeled, including the base case, converting the three coal units was the lowest-cost option under OG&E’s own modeling—lower-cost, for consumers, than installing SCR or retirement/gas replacement.

⁶ OG&E Draft IRP at 5.

⁷ *Id.* at 5.



Table 1: OG&E IRP Scenarios and Sensitivities (\$mil NPV)

	Retire and Replace All Coal	All SCR (gas and coal)	Convert and SCR (on gas)
Base Case	\$2,792	\$2,536	\$2,386
Low Gas	\$2,490	\$2,274	\$1,922
High Gas	\$3,616	\$2,599	\$3,315
CO2 Tax	\$1,877	\$2,269	\$1,747
Low Solar Cost	\$2,749	\$2,536	\$2,386
High Solar	\$2,828	\$2,536	\$2,386
Low Fuel Supply	\$3,546	\$2,565	\$3,236
High Fuel Supply	\$2,631	\$2,509	\$2,171
Energy Evolution	\$3,076	\$2,729	\$2,826

OG&E’s own results therefore show that continued coal operation is uneconomic under the most likely scenarios to comply with the Good Neighbor Plan—including OG&E’s own base case. However, while OG&E is assessing Good Neighbor Plan compliance due to the requirement for this IRP from the prior stipulation, OG&E has not made a compliance decision as a result of this analysis. The Company states that it wants to “avoid unnecessary expenditures for customers” and will “take needed compliance actions after final decisions are made through the legal process.”⁸

OG&E’s approach is flawed and does not serve OG&E customers. Compliance requirements for ozone reduction are not going away and have tightened over time. The Good Neighbor Rule is the outgrowth of broader federal statutory regulation of ozone and other pollutants, with the purpose of protecting public health and welfare. The federal Clean Air Act requires EPA to establish National Ambient Air Quality Standards (NAAQS) that set the maximum allowable ambient concentration of certain harmful air pollutants, such as ozone.⁹ EPA must review and, if appropriate, revise those standards every five years.¹⁰ The Clean Air Act’s “Good Neighbor Provision” combats the problem of interstate pollution—pollution blowing from “upwind” states to harm public health in “downwind” states. The Good Neighbor Provision of the Clean Air Act requires states to implement “adequate provisions . . . prohibiting . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . .

⁸ *Id.* at 45.

⁹ 42 U.S.C. §§ 7408(a), 7409(b)(1).

¹⁰ *Id.* § 7409(d).



contribute significantly to nonattainment or interfere with maintenance” of the NAAQS in any other state.¹¹ If EPA determines that a state has not submitted a compliant plan, EPA must adopt a federal plan for the state to achieve compliance with the NAAQS in all areas of the country within the statutory deadline.¹²

EPA issued the Good Neighbor Rule—a regulation implementing the Good Neighbor Provision for ozone pollution—after finding that cross-border ozone precursor emissions from Oklahoma and 22 other “upwind” states was “significantly contributing to nonattainment or interfering with maintenance of the 2015 ozone NAAQS in downwind states.”¹³ The Rule revises and tightens the existing Cross-State Air Pollution NOx allowance trading program with revised emissions budgets for fossil fuel-fired plants in Oklahoma and 24 other states.¹⁴ Beginning in 2026, emissions budgets expect installation of SCR controls at all coal-fired generating units, including Muskogee Unit 6 and Sooner Units 1 and 2.¹⁵ These steps are necessary because the Clean Air Act requires that emissions control measures be “permanent and enforceable.”¹⁶ The reasoning in the Good Neighbor Rule, and the fact that it stems from the Clean Air Act’s Good Neighbor statutory provision, makes clear that the Good Neighbor Rule is a necessary implementation of reduced cross-state air pollution under the ozone NAAQS—as federal law requires.

Even were the Good Neighbor Rule itself not to survive legal challenge, the underlying federal statutory requirement to reduce the cross-state air pollution produced in Oklahoma—the pollution produced by Muskogee Unit 6 and Sooner Units 1 and 2—will remain. Another federal rule would need to address that pollution. The need to comply with federal statute and to reduce cross-state ozone pollution is not going away. Further, other environmental regulation such as regional haze may also require reduction in NOx pollution—an impact likewise not analyzed by the Company. OG&E disserves its customers by failing to adopt a proactive plan to move toward compliance with federal environmental regulation. OG&E’s statement that it “will continue to monitor environmental regulation developments and take actions, if deemed necessary,” is not a robust plan that will best serve consumers.

B. OG&E Is Failing to Plan for Federal Environmental Regulation Under Clean Air Act Section 111(d), Despite the Existing Proposed Rule.

A long-term resource decision needs to account for the long-term costs and risks, to the best of the planner’s abilities and given the knowledge available at the time of that decision. New

¹¹ *Id.* § 7410(a)(2)(D)(i)(I).

¹² *Id.* § 7410(c)(1), (k)(1)-(4).

¹³ EPA, *Final Rule: Federal “Good Neighbor Plan” for the 2015 Ozone National Ambient Air Quality Standards*, 88 Fed. Reg. 36,654, 36,656 (June 5, 2023).

¹⁴ *Id.* at 36,663.

¹⁵ *Id.* at 36,657.

¹⁶ *Id.* at 36,752.



environmental regulation is requiring more pollution mitigation, not less. OG&E acknowledges this fact in the IRP, stating:

Environmental regulations are expected to become increasingly stringent, requiring increased expenditures for installing and operating control equipment and to monitor and report compliance.¹⁷

But the IRP then ignores many future predictable regulatory costs. Most notably, it ignores the proposed greenhouse gas limits from EPA that will require carbon dioxide (CO₂) emissions reductions at existing coal and new gas generation. OG&E does not estimate the costs of the EPA's greenhouse gas (GHG) limit under Section 111(d) of the Clean Air Act, which in proposed form will require carbon capture and sequestration (CCS) at its coal units for continued operation beyond the 2030s—OG&E's current plan. The proposed rule, which is expected to be finalized later this spring, requires that existing coal units either: (1) install CCS with 90 percent capture by 2030, if the owner is planning to operate the unit after 2039; (2) co-fire with 40% (by volume) gas by 2030 if the unit retires prior to 2040; (3) operate at a 20 percent capacity factor if retiring prior to 2035; or (4) retire the unit prior to 2032.¹⁸ If OG&E intends to run the Sooner or Muskogee units after 2032, per this rule, it must choose one of the above options by 2030. Yet it is apparent that OG&E did not model the costs of CCS at either its existing coal units or its new gas units in its portfolios. When asked if it considered the rule, the Company responded: "The IRP development process considers risks of specific regulations when they become final."¹⁹ But only considering final rules is short-sighted, piecemeal planning.

While the final rule may change in its particulars, the likelihood that OG&E can run the coal units past the 2030s without undertaking any of the above measures is slim. Yet the Company has again not factored in any of these costs to its resource planning. The EPA estimates that the capital costs of CCS would be nearly \$2,600 per kW, which would be roughly \$2.6 billion to install at the Sooner plant.²⁰ That would not be the only cost related to CCS: its operation also entails transportation and storage costs for captured carbon, and other additional operations and maintenance costs at the plant. Moreover, CCS results in significant heat rate and capacity penalties at the unit (i.e., the capacity of each unit could be reduced by as much as a third).²¹

¹⁷ OG&E Draft 2024 IRP, p.6

¹⁸ EPA, *Clean Air Act Section 111 Regulation of Greenhouse Gas Emissions from Fossil Fuel-Fired Electric Generating Units*, Slides 13, 15-16. Available at: https://www.epa.gov/system/files/documents/2023-05/111%20Power%20Plants%20Stakeholder%20Presentation2_4.pdf.

¹⁹ Company response to informal discovery from Sierra Club.

²⁰ Docket No. EPA-HQ-OAR-2023-0072, *TSD – GHG Mitigation Measures for Steam EGUs* (Document No. EPA-HQ-OAR-2023-0072-0061_attachment_3), May 29, 2023. Available at: <https://www.regulations.gov/document/EPA-HQ-OAR-2023-0072-0061>

²¹ *Id.*



OG&E must address the prospect of this type of investment at its existing coal and any planned or modeled natural gas combined cycle (NGCC) units.

And OG&E must evaluate all four potential pathways for compliance with Section 111(d) regulation, to get the ball rolling on a planning process that will ensure the most affordable, lowest-cost option for OG&E customers. The worst of all possible worlds, for customers, would be failure to act by OG&E while the compliance deadlines come closer—and then being stuck with a potentially highly expensive pathway by default, because the utility has not planned ahead. It is essential that OG&E proactively evaluate the Section 111(d) proposed rule in order to determine and be ready to act on the most affordable and reliable, least cost path for customers to meet necessary compliance deadlines. OG&E should do so in a transparent, public way, providing for public input to strengthen the process.

C. OG&E Has Previously Ignored the Risk of Environmental Compliance Costs at Its Coal Units. It Must Not Repeat the Same Mistakes.

OG&E has a track record of ignoring potential environmental regulations and their associated costs. For instance, in its 2014 IRP, the Company failed to estimate the costs for several (at the time) pending regulations—including an updated ozone NAAQS, CSAPR, the Coal Combustion Residuals (CCR) rule, and Clean Water Act Section 316(b), addressing cooling water.²² OG&E was aware of the potential for these rules at that time; it simply chose to ignore these costs when evaluating the economics of its coal units. In the draft IRP, the Company models one sensitivity that includes a carbon tax, but it does not include this cost in its base case—or any other scenario—and the carbon tax does not lead the Company to re-evaluate the portfolio of resources. History is repeating itself in this IRP, with OG&E effectively ignoring the proposed GHG limits that could drastically change its new resource procurement strategy and provide yet more pressure to cease coal operations. Moreover, as with other pollutants, it is unlikely that the coming final rule on GHG limits will be the end of federal carbon regulation.

Regarding the Sooner units in particular, we are concerned with OG&E's tendency to ignore future compliance costs and then—when compliance is unavoidable—to choose retrofitting rather than conversion or retirement, with little examination. In 2014, the Company tried fighting the Regional Haze rule obligations to reduce sulfur dioxide (SO₂) and lost at the U.S. Supreme Court.²³ As a result, OG&E evaluated whether to install flue gas desulfurization (also known as scrubbers) at the Sooner units, convert the units to gas, or retire and replace them. This is the equivalent of how the Company is treating the Good Neighbor Plan today. OG&E is relying on litigation now to put off a resource decision and has set up an equivalent analysis for compliance

²² Oklahoma Corporation Commission (OCC), Cause No. PUD 2014-00029, Direct Testimony of Tyler Comings at 22-33.

²³ See Herman K. Trabish, *Supreme Court Denies OG&E Lawsuit Against EPA*, Utility Dive, May 29, 2014, <https://www.utilitydive.com/news/supreme-court-denies-oge-lawsuit-against-epa/268588/>.



as it did with Regional Haze. There are two key lessons from 2014 that should be carried forward to today: (1) OG&E should view all forward-looking costs and risks at the time of a major resource decision; and (2) OG&E should not default to spending customer money on costly emission controls rather than fully evaluating all options, including ceasing coal operations prior to the far-in-the-future retirement target, to determine now which plan provides the most affordable and reliable long-term electricity for customers.

In 2014, OG&E chose to install scrubbers for controlling sulfur dioxide (SO₂) at the two Sooner units—for nearly \$500 million in upfront scrubber costs—despite myriad evidence that the scrubbers were a poor economic decision at the time.²⁴ As in this current IRP, at that time the Company failed to consider major compliance costs that it considered as potential or speculative. If the Company had considered future costs, it would have likely ceased coal operations at the Sooner units.

The potential for SCR being required at these coal units was foreseeable in 2014—well before the GNP was proposed. In the pre-approval case for the scrubbers, OG&E was specifically warned of the potential need for SCRs due to the “the likelihood that...additional NO_x reductions will be required at these units.”²⁵ The testimony in that case discussed multiple reasons why SCRs would be required and should have been accounted for in the Company’s 2014 modeling—a decade ago—including the Regional Haze Rule and an updated ozone transport rule (CSAPR):

.... CSAPR was designed to prevent interstate air pollution that causes non-attainment problems based on the 1997 ozone standard. If CSAPR were updated to take into account new, more stringent PM_{2.5} and Ozone NAAQS, I’d expect that the next version of CSAPR will lead to additional NO_x reductions being required on sources like Sooner and Muskogee.²⁶

That 2014 testimony also mentioned the proposed ozone NAAQS under consideration by EPA at the time: decreasing the 2008 limit of 75 ppb (parts per billion) to between 65 and 70 ppb.²⁷ Soon after, this came to pass and that 2015 ozone limit is currently still in place at 70 ppb,²⁸ and the GNP is now based on that 2015 limit. In the 2016 pre-approval case, the Company was warned yet again that SCRs could be required at the units because of the 2015 ozone limit.²⁹

²⁴ Oklahoma Corporation Commission (OCC), Cause No. PUD 2014-00029, Direct Testimony of Tyler Comings.

²⁵ *Id.* at 33.

²⁶ *Id.* at 31.

²⁷ *Id.* at 27-28.

²⁸ See EPA, *NAAQS Table* (last updated Feb. 7, 2024), <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

²⁹ Oklahoma Corporation Commission (OCC), Cause No. PUD 2016-00059, Rebuttal Testimony of Tyler Comings, p.22.



Despite these foreseeable updates to ozone regulations, OG&E ignored the potential consequences when deciding to install FGD at the Sooner units and has largely ignored the prospect that SCRs would be needed at its coal units—until now, and albeit in a limited manner.

OG&E must not repeat the same mistakes, of evaluating environmental compliance costs in a piecemeal and cursory fashion only long after they are foreseeable. This time, OG&E must conduct a forward-looking evaluation, looking at the *entire* picture—looming environmental compliance costs from ozone regulation via the Good Neighbor Rule, carbon regulation under Section 111(d) of the Clean Air Act, and all other environmental compliance that bears on OG&E. As OG&E itself recognizes, environmental compliance is becoming more stringent. It will increasingly weigh on Muskogee Unit 6, Sooner Unit 1, and Sooner Unit 2—sooner rather than later. It is essential that OG&E sum up the impending, foreseeable environmental compliance costs for each unit to determine the most economic future for Oklahoma customers. It is essential that the utility plan ahead for the least-cost option and that it share its work, getting input from all stakeholders and the public as soon as possible to move forward quickly on implementing the plan that will ensure affordability for customers.

III. The IRP Overstates the Costs of Clean Energy Resources.

OG&E's IRP is also deficient because it has overestimated the costs of new renewable and storage resources. This treatment—as well as the lack of any costs associated with GHG limits for new gas—means that the draft IRP unfairly disadvantages clean resources relative to new gas. This is a crucial flaw that must be remedied, because the capacity expansion modeling is only as effective as the input assumptions used. If these inputs are biased, then the results will be as well. Gas is no longer the only default resource option for utilities—yet it is the assumed replacement under the GNP compliance if the units retire. Coal generation is often uneconomic versus cleaner replacement, even when the utility is not facing major environmental compliance costs. The passage of the Inflation Reduction Act (IRA) makes all clean options even more appealing. In particular, battery storage has become more attractive as it offers critical grid services (such as voltage regulation) and complements the intermediacy of wind and solar photovoltaic (PV) resources. These attributes, along with decreasing cost trends, led total battery storage capacity in the US to roughly double in each year since 2020; and the Energy Information Administration (EIA) expects capacity to double yet again from 2023 to 2024.³⁰

OG&E's cost projections for solar, battery and wind resources are unfortunately overstated because OG&E appears to assume that the recent high costs of these resources will persist. OG&E claims it used the long-term forecasts of overnight capital costs using the National Renewable Energy Laboratory's (NREL) Annual Technology Baseline (ATB) data to estimate

³⁰ EIA. *U.S. battery storage capacity expected to nearly double in 2024*, available at: <https://www.eia.gov/todayinenergy/detail.php?id=61202#>.



the trajectory of solar, wind, and battery storage costs.³¹ But this data was applied to estimates from Burns and McDonnell, which must have assumed a high starting capital cost. As a result, the costs assumed by OG&E are roughly 1.5 to 2 times higher than those from NREL—as shown below in Table 2.

Table 2: Capital Costs for 2027 Installations (\$2023/kW)³²

	OG&E	NREL ATB
Solar PV	\$2,220	\$1,263
Wind	\$1,940	\$1,293
Batteries	\$2,130	\$1,510
Solar/Battery	\$3,230	\$2,002

OG&E’s methodology, while applying a downward direction for clean energy costs, starts at such a high-cost point that the premium persists in the medium to long-term. It is a testament to the attributes of solar PV that despite the high costs assumed by OG&E, the Company’s choice of preferred plan is solar PV and gas combustion turbine (“Solar + CT”).³³ Although interconnection and supply chain issues have created upward pressure on the costs of clean energy technologies over the past few years, it is unlikely that these conditions will persist in the long-term. In fact, some of these challenges related to supply chain issues have started to show some relief, and there has been movement at the federal level to improve the interconnection process that has created a bottleneck in many regions in the United States. For SPP in particular, interconnection costs have been among the lowest across regional transmission organizations in the Eastern Interconnect.³⁴

Finally, we understand that the Company is applying the full production tax credit (PTC) for solar PV and wind, and the full 30 percent investment tax credit (ITC) for battery storage in this Draft IRP. We also suggest modeling the energy community adder of 10 percent for at least some replacement resources based on their potential locations. For instance, it may be possible to locate new resources at the sites of retired generators, which in turn could also expedite the interconnection process for these new projects. Even if OG&E chooses not to model the energy

³¹ OG&E Draft 2024 IRP at 18.

³² OG&E Draft 2024 IRP at 17; NREL ATB 2023, available at: <https://atb.nrel.gov/electricity/2023/data>. [NREL data adjusted for inflation to 2023 dollars \(using the U.S. Consumer Price Index\) for comparison with OG&E’s costs.](#)

³³ OG&E Draft 2024 IRP at 38.

³⁴ Joachim Seel, Julie Mulvaney Kemp Joseph Rand, Will Gorman, Dev Millstein, Fritz Kahrl, and Ryan Wisner. *Generator Interconnection Costs to the Transmission System*. June 2023. Lawrence Berkeley National Laboratory. Slide 14. Available at: https://eta-publications.lbl.gov/sites/default/files/berkeley_lab_interconnection_cost_webinar.pdf



community adder, we recommend that OG&E begin identifying promising locations where the energy community adder can benefit customers.

IV. Conclusion

OG&E's approach in the draft IRP is problematic for several reasons: (1) OG&E has not conducted a unit-by-unit assessment for compliance, only a one size fits all; (2) it is possible that some of the coal units are uneconomic even absent the need for an SCR but that has not been assessed in this IRP; (3) compliance requirements for ozone reduction are not going away and have tightened over time; (4) none of the modeling results reflect the additional risks of future regulations; and (5) OG&E has overstated the costs of clean resource replacement.

It is axiomatic in resource planning that a long-term resource decision needs to account for the long term, to the best of the planner's abilities and with the knowledge available at the time of decision. Right now, the best available information shows that the Company should at the very least evaluate ceasing coal operations at the Sooner and Muskogee units (individually) as soon as feasible. This unit-by-unit analysis needs to account for the units' current and foreseeable compliance obligations.

When OG&E is faced with a requirement for SCRs on its coal units, the mistake of investing hundreds of millions of ratepayer funds does not have to be repeated. A retirement analysis needs to account for long-term risks, including greenhouse gas limits and persistent pollutant mitigation. Environmental regulation is always in flux but has trended towards more pollution mitigation, not less. Continuing to punt the decision on these units could lead to once again installing costly emission controls that could have been avoided if the Company had simply planned ahead. As with past regulations, OG&E appears to be hoping for the best outcome by delaying a decision as to the future of its coal fleet, despite the on-going and future highly foreseeable economic challenges faced by these units.

OG&E owes it to its customers to incorporate a full analysis of retirement and/or gas conversion of Muskogee Unit 6 and Sooner Units 1 and 2 into this IRP. OG&E should re-run its Encompass modeling to optimize retirements, and it should account for anticipable environmental regulatory compliance—including federal ozone regulation and the impending requirements of the new Section 111(d) rule. Instead of repeating past mistakes and passing the buck to consumers, OG&E should evaluate closely in *this* IRP the optimal dates for ceasing coal operation at Muskogee and Sooner—including whether rapid acceleration of those timelines is necessary. It is unlikely that it is economic to operate these units into the 2040s.