BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR AN ORDER OF THE COMMISSION APPROVING THE COMPANY'S 2025 DEMAND PORTFOLIO; AUTHORIZING RECOVERY OF PROGRAM COSTS, LOST NET REVENUES AND INCENTIVES THROUGH THE ENERGY EFFICIENCY PROGRAM RIDER; AND FOR WAIVER OF OAC 165:35-41-4(B)(5), OAC 165:35-41-4(B)(7), AND OAC 165:35-41-5(D)(2)	)	CASE NO. PUD 2024-000048

Direct Testimony

of

Kelly Marrin

on behalf of

Oklahoma Gas and Electric Company

July 1, 2024

Kelly Marrin
Direct Testimony

QUALIFICATIONS, INTRODUCTION, AND PURPOSE

Q. **Would you please state your name, occupation, and business address?**

A. My name is Kelly Marrin. I am employed by DNV as a Principal Consultant with expertise in Evaluation, Measurement, and Valuation ("EM&V") Studies. My business address is 155 Grand Avenue Suite 600, 94612 Oakland, CA.

Q. **Please describe your professional education and experience.**

A. I earned a Bachelor of Arts in Economics and a Master of Arts in Economics with a concentration in Environmental Economics from California State University Fullerton. I have held multiple managerial and technical expert positions throughout my career.

I started my career in load research at Southern California Edison (SCE) in 2004 where I worked in the Regulatory Policy and Affairs group for five years supporting annual cost of service studies, in-house evaluation, and SCE's AMI business case. In 2009 I transitioned to consulting where I focused primarily on the evaluation of energy efficiency and demand response programs in the succeeding years.

In the past 15 years as a consultant, I have worked primarily at two firms, AEG (nee Global Energy Partners, EnerNOC Utility Solutions) and DNV. At AEG, my responsibilities progressed from Analyst (2010) to Vice President of Delivery (2023). Nearly all that time was focused on supporting and leading EM&V projects including multiple portfolio evaluations for clients such as the State of Hawaii, Orange and Rockland Electric (New York and New Jersey), Central Hudson in New York, UGI Utilities in Pennsylvania, Kentucky Power, Louisville Gas and Electric, and the Evaluation of OG&E's Portfolio of programs from program year's 2013-2015 and again starting in program year 2022.

Q. **Are you a member of any professional organizations?**

A. Yes, I currently am an instructor for the Association of Edison Illuminating Companies (AEIC) in statistical applications, and previously served as a board member for the Peak

Load Management Association ("PLMA") from 2021 through 2023. During my time with these organizations, I have presented at multiple industry conferences and before stakeholder groups in California, Washington, Idaho, Michigan, New York, and Hawaii.

Q. **What is DNV's role in this proceeding?**

A. DNV, as a subcontractor to Applied Energy Group ("AEG"), was engaged by Oklahoma Gas and Electric Company ("OG&E" or "Company") to develop EM&V protocols for OG&E's 2025-2029 Demand Program Portfolio, and to review program designs and technical assumptions used in the program designs.

Q. **What is your role as it relates to OG&E's current and planned Demand Programs?**

A. My role at AEG was the project director for the program years ("PY") 2022 and 2023 portfolio evaluations with responsibility for overseeing the EM&V activities for all OG&E demand programs. I was also the project director for the evaluation of the OG&E SmartHours program from 2012 – 2023. After joining DNV in March of 2024, I remained involved in the portfolio EM&V as a technical advisor and was asked to review elements of the plan, as stated above, also as a subcontractor to AEG.

Q. **Have you testified before in regulatory or legislative proceedings before the Oklahoma Corporation Commission ("Commission") or other regulatory body?**

A. No. I respectfully ask the Commission to accept my credentials.

Q. **On whose behalf are you testifying?**

A. I am testifying on behalf of OG&E.

Q. **What is the purpose of your testimony?**

A. The purpose of my testimony is to describe the EM&V activities conducted for the portfolio, discuss EM&V protocols and methodologies related to OG&E's 2025-2029

Demand Program Portfolio, and review program designs and technical assumptions used in the program designs.

DEMAND PROGRAM EM&V

Q. **Are there industry-standard protocols for EM&V of demand programs?**

A. Yes, utility-sponsored demand program activity is closely scrutinized in many jurisdictions to ensure that customer funds are being prudently spent and that such programs are delivering the energy savings and demand reductions that are expected by system planners. As required in Oklahoma, independent, third-party EM&V has become the industry standard, and is often a mandated activity for utilities engaging in demand programs. Standards and specifications that guide independent EM&V activities are set out in several guidebook documents. These include the following:

1. Protocols for evaluating, measuring, and verifying savings for energy efficiency measures, published through the Uniform Methods Project ("UMP") sponsored by the U.S. Department of Energy ("DOE").[1]
2. *Energy Efficiency Program Impact Evaluation Guide*, State and Local Energy Efficiency Action Network, December 2012.[2]
3. *National Standard Practice Manual ("NSPM") for Assessing Cost-Effectiveness of Energy Efficiency Resources*, National Efficiency Screening Project, May 2017.[3]
4. *SEE Action Guide for States: Evaluation, Measurement, and Verification Frameworks—Guidance for Energy Efficiency Portfolios Funded by*

[1] The protocols are available at www.energy.gov/eere/about-us/ump-protocols.

[2] *See* www4.eere.energy.gov/seeaction/system/files/documents/emv_ee_program_impact_guide_0.pdf.

[3] *See* www.nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_May-2017_final.pdf.

Utility Customers, State and Local Energy Efficiency Action Network, January 2018.[4]

5. International Performance Measurement and Verification Protocol ("IPMVP"). *Core Concepts.* Efficiency Valuation Organization. October 2016.[5] Notably, the IPMVP is an industry standard for development and implementation of measurement and verification ("M&V") plans and energy savings estimates at the project level.
6. American Society of Heating, Refrigeration and Air Conditioning Engineers ("ASHRAE"). *Guideline 14-2014: Measurement of Energy, Demand and Water Savings.*[6] Like the IPMVP ASHREA guidance pertains to project level savings.
7. *M&V Guidelines: Measurement and Verification for Performance-Based Contracts Version 4.0*, DOE Federal Energy Management Program ("FEMP"), November 2015.[7] Like the IPMVP DOE's guidance pertains to project level savings.

It is also best practice to develop and apply regional deemed savings values, i.e., stipulated savings for common and/or predictable measures, with the stipulated values based on prior, local M&V research. There is a long history of the use of deemed savings for validating impacts from these programs, as observed through the development of the California Database for Energy Efficient Resources ("DEER"), the New York State Energy Research and Development Authority ("NYSERDA") Deemed Savings

[4] *See* www7.eere.energy.gov/seeaction/system/files/documents/EMV-Framework_Jan2018.pdf; this EM&V guidance document succeeds and contains references to the California Public Utilities Commission's June 2004 *California Evaluation Framework.*

[5] IPMVP *Core Concepts* may be downloaded at www.evo-world.org (via a free account), or the similar 2012 IPMVP is here: www.eeperformance.org/uploads/8/6/5/0/8650231/ipmvp_volume_i__2012.pdf.

[6] *See* https://www.techstreet.com/ashrae/standards/guideline-14-2014-measurement-of-energy-demand-and-water-savings?gateway_code=ashrae&product_id=1888937.

[7] *See* www.energy.gov/sites/prod/files/2016/01/f28/mv_guide_4_0.pdf.

Database, the Pennsylvania Act 129 Technical Reference Manual ("TRM"), the Northeast Energy Efficiency Partnership ("NEEP") Mid-Atlantic TRM, the Illinois TRM, the Arkansas TRM.

Q. **What is the basic formula used by demand program practitioners in expressing demand and energy savings resulting from a specific project or program?**

A. The impacts of a demand program are generally formulated as:

Demand (or Energy) Savings = Normalized Baseline Demand (or Energy) Consumption – Normalized Post Treatment Demand (or Energy) Consumption

"Baseline" refers to demand (i.e., kilowatt or kW) or energy (i.e., kilowatt-hour or kWh) consumption without the EE measure. For a retrofit, the baseline would be based on pre-retrofit consumption. Some types of projects might also utilize the applicable minimum code or industry standard practice. For example, per-code efficiency can provide the baseline for new construction projects, as there is no previous equipment for comparison; per-code efficiency can also serve as baseline for replacement of failed equipment, given that participants need to purchase new equipment, subject to current code, regardless of the presence of a program.

"Treatment" refers to the programmatic intervention that results in a change in consumption. The treatment could be a single measure or a group of measures, it could also refer to permanent or temporary changes in behavior or operations.

"Normalization" refers to adjusting baseline and post treatment consumption to common operating conditions, including normalizing consumption for each period to the same weather conditions. In addition, if operating patterns are different between pre and post, (e.g., change in operating hours), the baseline usage would typically be estimated at the post-treatment operating pattern which yields an estimate of what usage would have been in the post period absent the treatment.

Q. **What steps are involved in preparing an EM&V plan for a given program?**

A. The steps in preparing an EM&V plan include:

1. Define success metrics and research needs.
    a. Establish the evaluation objectives.
    b. Define participants.
    c. Review available data to support evaluation activities.
    d. Determine program eligibility and applicable baseline for energy efficiency measures included in the program.
2. Select the appropriate EM&V approach.
    a. Defining the data collection strategy and rigor level appropriate for the program size and design (e.g., new construction vs. retrofit, downstream inducements to end-users vs. midstream inducements to retailers).
    b. Determine inputs needed for cost-effectiveness testing of the program (energy and gas savings, equipment incremental costs, operational and maintenance impacts).
3. Determine other relevant information to be collected.

EM&V plans take into consideration program design, data availability and acquisition costs, the appropriateness of a specified rigor level and associated EM&V costs relative to program budget, and the trade-off between evaluation costs and added precision. EM&V protocols were developed for OG&E's program design to define parameters under which the demand programs would have their success measured. EM&V efforts for OG&E utilize industry best practices and regionally appropriate deemed savings.

Q. **How does the program design and logic affect data collection and other research requirements?**

A. The program design and logic dictates both data collection requirements and data availability. The most commonly observed program design and logic (in OG&E's Demand Program Portfolio and nationwide) is to overcome the first-cost barrier through

rebates for efficient equipment. At its most basic, the evaluation of the energy impacts for such programs entails determining the quantity and efficiency level of equipment rebated through the program and validating use of the appropriate baseline.

Programs that seek to address other barriers, including lack of awareness, lack of local technical expertise, or split inducements, require additional data collection to evaluate program effectiveness.

Programs which target trade allies need to be assessed regarding their success in training and engaging local contractor communities to expand services beyond their current practices.

For OG&E programs which target intervention points beyond an end-user inducement, additional EM&V research activities will:

1. Identify market barriers and current program intervention strategies.
2. Evaluate the effectiveness of current intervention strategies in overcoming barriers.
3. Develop recommendations to optimize and improve strategies for overcoming barriers.

Q. **What EM&V methods are employed during the process evaluation of OG&E's demand programs?**

A. For the process evaluation the evaluator typically conducts participant surveys, participant in-depth interviews, contractor and trade ally interviews, interviews with OG&E and implementation staff for each program and channel, and cycle time analysis. In addition to the market related objectives described above, process activities are designed to help the evaluator understand:

1. Program performance, marketing and customer awareness of the program, program data and tracking mechanisms, barriers to increased participation, overall program effectiveness, and opportunities for program improvements.
2. Customer experience, awareness, satisfaction, attitudes, recommendations for improvement.

3. Trade ally / Contractor experience, awareness, satisfaction, attitudes, and recommendations for improvement.

Q. **What EM&V methods are employed during the gross impact evaluation of OG&E's demand programs?**

A. OG&E's Demand Program Portfolio relies mostly on deemed savings estimates (either stipulated savings or deemed calculations) from the AR TRM or other appropriate sources. As such, the role of the evaluator is primarily to ensure that the deemed savings or deemed algorithms have been properly calculated and applied. The evaluator conducted a combination of the following impact activities to produce verified gross savings for stipulated deemed and calculated deemed savings estimates as follows:

1. Savings replication, performed at the census level, duplicated the savings from the tracking database and ensured that claimed savings estimates, associated inputs, and assumptions were correct and reasonable and conformed to the AR TRM or another appropriate source.
2. Engineering desk reviews, performed on a sample of participants, checked the accuracy of input variables, model numbers, and other project-specific information in the backup documentation for a sample of applications or projects and confirmed that the savings calculations followed deemed calculations in the AR TRM or another appropriate source.
3. Verification activities, performed on a sample of participants, use virtual or onsite methods to verify measures/equipment rebates, installation, and operation.

These approaches conform to industry best practice for the verification of savings from measures that use deemed and calculated deemed savings estimates.

For custom projects, or projects which do not have deemed values, the evaluator carefully reviewed the savings estimates of the implementer to ensure that the M&V performed aligns with the appropriate IPMVP option for the specific project, followed IPMVP guidance, and ensured that all calculations were reasonable and correct. The following additional activities supported that analysis.

1. Through virtual or in-person onsite visits, verified that equipment is operating correctly and recorded model numbers and efficiencies,
2. Confirmed the fuel used and other pertinent information, including (1) verifying utility meters that serve the building and recording meter numbers, (2) verifying any calculation inputs that are required to evaluate the energy savings, (3) verifying baseline and efficient case parameters used in the building simulation models, and (4) verifying building construction permit and completion dates,
3. For measures with very high savings, measures with considerable uncertainty in their assumptions, custom engineering analyses, or complex projects that need more detailed data collection and analysis, the evaluator also completed additional verification activities such as these, as appropriate for each site.
    a. Obtained screenshots of the building's energy management system or control system,
    b. Obtained trend data from the building's energy management system and any submeter data available from the site, and
    c. Verified parameters used in the building simulation model, including building occupancy and equipment operation schedules, equipment sizes and efficiencies, details of equipment control systems, and building geometry and construction characteristics.

Q. **What EM&V methods are employed during the net impact evaluation of OG&E's demand programs?**

A. Net impact evaluation establishes a net savings estimate which can be defined as savings that are directly attributable to the program. The evaluator used a survey-based approach for each program/channel to develop the net-to-gross ratios which adjusts gross savings to account for (1) free riders, participants not influenced by the program, and (2) from spillover, nonparticipants influenced by the program, but savings were not reported. Self-report surveys are commonly used throughout the industry to estimate the net to

gross ratios for net savings analysis and the evaluator's approach is in line with industry best practice including the Uniform Methods Project Chapter 21.[8]

Q. **What did your review of OG&E's 2024-2029 Demand Program Portfolio Plan ("program plan") entail?**

A. My review of OG&E's program plan entailed:

1. A review of savings assumptions used for all programs.
2. A review of measure incremental cost assumptions used for all programs.
3. A critique of program design and delivery mechanisms proposed in the program plan.

Q. **What did you find in your review of savings assumptions?**

A. OG&E's 2025-2029 program plan developed annual savings estimates based on the following key inputs: historical total measure level savings, historical number of participants, historical net-to-gross ratios, the AR TRM or other appropriate TRMs, and effective useful life.

1. Historical total measure level savings are based on 2022 and 2023 measure-level ex ante kWh and kW savings from OG&E's tracking database. The evaluator reviewed these savings estimates during the PY2022 and PY2023 evaluations and found them to conform to the AR TRM with minimal adjustments and recommendations (Gross savings realization rates ranged from 97-100% in PY2023). There are a minority of measures in the OG&E program which are not included in AR TRM and thus cite other sources for the respective ex-ante expected savings estimates. For these measures, the evaluator employed engineering calculations to check ex-ante expected savings estimates or reviewed the appropriate algorithms if sourced to a different TRM. For new measures, the plan references an ex-ante savings estimate from the AR TRM.

[8] Chapter 21: Estimating Net Impacts, The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, September 2016, https://www.nrel.gov/docs/fy17osti/68578.pdf

2. Historical number of participants are also based on OG&E's 2022 and 2023 measure level tracking data. For new measures, the plan used assumptions based on the historical participation rates for similar measures. DNV reviewed the participation inputs and escalation assumptions and found them reasonable.
3. Historical net-to-gross ratios were based on previous evaluations. DNV confirmed that the ratios were accurately applied.
4. Effective useful life assumptions are primarily based on the AR TRM and other appropriate sources for the minority of measures that are not included in the AR TRM.

DNV is satisfied that the overall estimates for ex-ante expected savings in the OG&E program plan are consistent with historical performance, the AR TRM and, as needed, other sources. However, OG&E is making several meaningful changes within the 2025-2029 planning period, and the outcome of those changes remains uncertain. Three specific areas of uncertainty are:

1. OG&E plans to add new measures and scale up participation in other measures to replace savings from general service lighting ("GSL") measures, which include the light emitting diode ("LED" bulbs) that provided the majority of the residential lighting savings in the 2022-2024 program plan:
    a. OG&E's program plan includes an increase in participation of 20% and 25% in CEEP and HEEP respectively in 2026, and maintenance of that participation level in the remaining years of the plan. These assumptions represent the cumulative effect of marketing and recruitment efforts in 2025 and 2026, with the rationale that a 0% increase in 2025 (during the first year of the new portfolio) is conservative and the total effect will not be seen until 2026.
    b. OG&E's 2025-2029 plan has incorporated a strategic streamlining of channels and the addition of new delivery mechanisms (marketplace) designed to improve the customer experience and improve efficiency. This tactical approach to facilitating ease of participation represents a

meaningful risk mitigation strategy. The 2025-2029 plan also includes new measures that target specific building types, including indoor agriculture and commercial kitchen equipment, which are likely to reach new customers and increase savings.

c. OG&E's marketing and incentive budgets reflect a significant investment over the first two years of the program to support the increase in participation and new offerings.

2. Large commercial and industrial ("C&I") projects that have high expected savings per project and require custom EM&V analyses. Because no deemed savings value or calculation exists, the evaluated savings from these projects are more variable when compared to deemed savings:

   a. The following C&I measure categories include numerous large projects involving diverse activities and measures.

      1. Custom C&I
      2. Continuous Energy Improvement ("CEI")
      3. Retro-commissioning ("RCx")

   b. Collectively, the portion of savings attributable to large custom projects is increasing overtime.

   c. While large C&I projects significantly influence EM&V findings, the risk mitigation approach is very manageable. To mitigate risks associated with large C&I projects, the Evaluator will collaborate closely with OG&E and its program implementers to provide pre-construction or pre-implementation reviews for very large custom or RCx C&I projects. The Evaluator will work with OG&E and the implementer to define a savings cutoff over which projects would receive this review. The review process will provide the OG&E team with an initial check of proposed savings methodologies, and data collection plans, plus detailed EM&V plans. C&I projects should continue to receive Evaluator review of savings estimates prior to payment of incentives.

3. OG&E is extending the planning horizon in this plan to five years relative to prior plans at three years, however, OG&E has built in the option to update the plan mid-cycle after reviewing the first two years of performance to mitigate this risk if needed.

Q. **What did you find in your review of measure incremental costs?**

A. Incremental costs for the EE measures were all derived based on the historical measure level costs incurred in PY2022 and PY2023 escalated to account for inflation. DNV reviewed the proposed measure incremental cost values for the various programs in the OG&E program plan for the 2025-2029 planning period and determined the costs to be reasonable and appropriate.

Q. **What did you find in your review of program design and delivery mechanisms?**

A. DNV's review of program design and delivery mechanisms found that the programs included in the OG&E plan employ well-established delivery mechanisms which are commonly seen regionally and nationally. Having worked with the OG&E team during the most recent three program years, DNV observes that the OG&E plan accommodates various evaluator recommendations pertaining to program design and delivery mechanisms.

Q. **Do the EM&V protocols detailed in the OG&E program plan adhere to the industry best practices detailed in your testimony?**

A. Yes, the EM&V protocols detailed in the OG&E program plan adhere to industry best practices. At OG&E's request – which is consistent with DNV's current role as OG&E's independent, third-party evaluation contractor – DNV authored the EM&V protocols that are provided in the OG&E program plan.

CONCLUSION

Q. **Do you have any closing remarks?**

A. Yes. In summary, DNV is satisfied that the overall estimates for ex-ante expected savings in the OG&E program plan are consistent with historical performance, the AR

TRM and, as needed, other sources. In addition, DNV's review of the proposed measure incremental cost values found them to be reasonable and appropriate. DNV's review of program design and delivery mechanisms found that the programs included in the OG&E plan employ well-established delivery mechanisms. Finally, the EM&V protocols detailed in the OG&E program plan adhere to industry best practices.

Q. **Does this conclude your testimony?**

A. Yes.

AFFIDAVIT

STATE OF _____)
)
COUNTY OF _____)

On the 26th day of June 2024, before me appeared Kelly Marrin, to me personally known, who, being by me first duly sworn, states that she is a Principal Consultant for DNV and acknowledges that she has read the above and foregoing document and believes that the statements therein are true and correct to the best of her information, knowledge, and belief.

Print Kelly Marrin

Signature Kelly Marrin 6/26/2024

Subscribed and sworn to before this 26th day of June, 2024.

_____
Notary Public

My commission expires: _____

Seal SEE ATTACHED
AKH 06/26/2024

JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Luis Obispo } SS.

Subscribed and sworn to (or affirmed) before me on this 26th day of June, 2024, by

Kelly Marin, proved to me on the basis of satisfactory evidence

to be the person(s) who appeared before me.

AVA KATHLEEN HARRISON
COMM. # 2443489
NOTARY PUBLIC - CALIFORNIA
SAN LUIS OBISPO COUNTY
MY COMM. EXP. APR. 7, 2027

NOTARY'S SIGNATURE

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