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August 2, 2019

Ms. Alice Stebbins
Executive Director
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Facsimile: 415-703-1758
Email: Alice.Stebbins@cpuc.ca.gov

Re: Request for Initial Safety Certification Pursuant to P.U.C. § 8389

Dear Ms. Stebbins:

Section 8389(f)(1) of the Public Utilities Code¹ provides that an electrical corporation qualifies for the issuance of an initial safety certification from the Executive Director of the California Public Utilities Commission by providing documentation that it is meeting the requirements set forth in paragraphs (1), (2), (3), and (5) of Section 8389(e). The July 12, 2019 letter from the Deputy Executive Director for Safety and Enforcement Policy, Ms. Elizaveta Malashenko, provides further guidance on initiating the initial certification process under Section 8389.

Pacific Gas and Electric Company (PG&E) respectfully requests an initial safety certification in accordance with Section 8389 and Ms. Malashenko's Initial Safety Certification Application Staff Guidelines. This cover letter summarizes how PG&E meets the relevant requirements of Section 8389, as further documented by the supporting materials referenced herein. My affidavit is also attached, confirming that all of the information provided in this request is true and accurate.

Paragraph (1) of Section 8389(e): *"The electrical corporation has an approved wildfire mitigation plan."*

The Commission approved PG&E's 2019 Wildfire Mitigation Plan on May 30, 2019 in Decision 19-05-037, stating that "PG&E's Wildfire Mitigation Plan contains each of the elements required in SB 901, Public Utilities Code Section 8386(c)."² The version of PG&E's plan approved by the Commission was filed February 6, 2019, corrected February 12, and amended February 14, 2019. As explained in PG&E's approved plan, and summarized by the

¹ As added by Assembly Bill 1054 (Holden), Chapter 79, Statutes of 2019.

² Hyperlinks to publicly available copies of the decisions, filings, and other documents referenced or cited in this letter are provided in Attachment A hereto.

Commission, “the primary objective of its 2019 Wildfire Mitigation Plan (WMP or Plan) is to reduce the risk of potential wildfire-causing ignitions associated with PG&E’s electrical facilities in areas identified as high fire risk in the Commission’s fire threat map proceeding,” and “include[s] proposals for conducting enhanced safety inspections of utility assets in [High Fire-Threat District] areas, hardening its electric system against wildfires by installing stronger, more resilient poles and covered power lines, expanding PG&E’s vegetation management around its power lines, including clearing overhanging branches directly above and around power lines, and increasing situational awareness.”³

Paragraph (2) of Section 8389(e): *“The electrical corporation is in good standing, which can be satisfied by the electrical corporation having agreed to implement the findings of its most recent safety culture assessment, if applicable.”*

The Commission’s Safety and Enforcement Division (SED) selected NorthStar Consulting Group (NorthStar) to assist with performing an assessment of PG&E’s safety culture beginning in April 2016. On May 8, 2017, NorthStar issued a report setting forth their recommendations. PG&E agreed to implement all recommendations and proposed an implementation plan for each recommendation.⁴ The Commission subsequently adopted the SED’s recommendations set forth in the NorthStar report, and directed PG&E to implement them, and serve quarterly report on the status of its implementation.⁵ On March 29, 2019, NorthStar performed its first update to the assessment of PG&E’s safety culture, containing additional recommendations, constituting the most recent safety culture assessment of PG&E. PG&E hereby similarly agrees to implement all of the recommendations in NorthStar’s March 29, 2019 report and will provide further detail regarding PG&E’s efforts to implement all changes recommended by NorthStar in its next quarterly report.

Paragraph (3) of Section 8389(e): *“The electrical corporation has established a safety committee of its board of directors composed of members with relevant safety experience.”*

PG&E’s Safety and Nuclear Oversight Committee is responsible for, among other things, overseeing goals, programs, policies, and practices with respect to promoting a strong safety culture, and monitoring the impact of changes in laws and regulations affecting safety, including, for example, the Community Wildfire Safety Program. The Committee also monitors and reviews the adequacy and direction of the corporate safety function.⁶

Individual members of PG&E’s current Board “possess deep technical and operational expertise related to gas pipeline safety, electric transmission and distribution safety, electric generation safety, nuclear safety, and occupational safety; expertise related to physical asset security and cyber threats; expertise related to pipeline safety management systems, enterprise

³ See D.19-05-037 at 3-4.

⁴ PG&E, *Pacific Gas and Electric Company Safety Culture and Governance OII Prepared Testimony* (January 8, 2018), at 2-1 (“PG&E agrees with all of the 61 recommendations directed at PG&E, commits to complete most recommendations by the end of 2018, and supports their adoption by the Commission.”).

⁵ See D.18-11-050, Ordering Paragraph 1 and 2.

⁶ See PG&E 2019 Joint Proxy Statement at 43, and Charter for Safety and Nuclear Oversight Committee.

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risk management, and improving safety culture; and expertise related to procedures and protocols for safeguarding individuals and property in various threat contexts and public emergencies.”⁷ The Safety and Nuclear Oversight Committee is currently comprised entirely of independent directors. Specifically, the committee is chaired by Cheryl F Campbell, with Jeffrey Bleich, Nora Mead Brownell, Frederick Buckman, Fred Fowler, Eric D. Mullins, and Kristine Schmidt completing the membership list. Details of each Board member’s safety-specific education, training, work experience, and Board experience is reflected in Attachment C hereto.

Paragraph (5) of Section 8389(e): “The electrical corporation has established board-of-director-level reporting to the commission on safety issues.”

The new Board is dedicated to achieving safe utility operations and a strong safety culture, and since being seated has invested substantial time and attention to safety issues. William Johnson, a PG&E board member, has and will continue to provide regular reports to the Commission on safety issues. PG&E commits to coordinate with the Commission to establish additional Board-level communications on safety issues in accordance with Section 8389(e)(5) and will reflect that reporting responsibility in a governance document which will be publicly available. In addition, NorthStar, on behalf of SED, has been attending PG&E Board meetings and meetings of the Safety and Nuclear Oversight Committee of the Board.

PG&E submits that, in light of the foregoing, it has met the requirements set forth in paragraphs (1), (2), (3), and (5) of Section 8389(e), and is entitled to the issuance of an initial safety certification within 30 days. Please do not hesitate to contact me with any questions regarding PG&E’s request for an initial safety certification.

Sincerely,



Michael Lewis
SENIOR VICE PRESIDENT OF ELECTRIC
OPERATIONS, PACIFIC GAS AND
ELECTRIC COMPANY

cc: Elizaveta Malashenko, Deputy Executive Director for Safety and Enforcement Policy
(Elizaveta.Malashenko@cpuc.ca.gov)

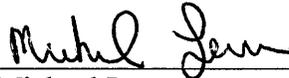
⁷ PG&E. *Compliance Filing of Pacific Gas and Electric Company (U 39 M) and PG&E Corporation Pursuant to D.19-06-008 in Investigation 15-08-019* (July 3, 2019), at 4-5.

VERIFICATION

I am a senior officer of Pacific Gas and Electric Company, and am authorized to make this verification on its behalf. I am informed and believe that the matters stated in the foregoing document are true and accurate.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 2nd day of August, 2019, at San Francisco, California.



Michael Lewis

SENIOR VICE PRESIDENT OF ELECTRIC
OPERATIONS,
PACIFIC GAS AND ELECTRIC COMPANY

Attachment A

The Commission's Decision 19-05-037 (May 30, 2019) is available at <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M298/K246/298246537.PDF>

PG&E's February 6, 2019 filing of its 2019 Wildfire Mitigation Plan is available for download at <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=551636>.

PG&E's February 12, 2019 correction to its 2019 Wildfire Mitigation Plan is available for download at <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=552411>.

PG&E's first amended 2019 Wildfire Mitigation Plan, filed on February 14, 2019, is available for download at <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=552661>.

PG&E's prepared testimony, dated January 8, 2018, in the Safety Culture and Governance OII is available for download at <http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=434814>.

NorthStar Consulting Group's May 8, 2017 report is available at https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/Risk_Assessment/PGE%20Final%20Safety%20Report%205-8-17%20NorthStar%20Consulting.pdf.

The Commission's Decision 18-11-050 (Nov. 29, 2018) is available at <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M245/K812/245812124.PDF>.

PG&E's 2019 Joint Proxy Statement is available at http://s1.q4cdn.com/880135780/files/doc_financials/2019/05/2019-Proxy-Statement-final-web-ready.pdf.

PG&E's Safety and Nuclear Oversight Committee's charter is available at <http://www.pgecorp.com/corp/about-us/corporate-governance/company-policies/safety-nuclear-oversight-committee.page>, and is also attached as Attachment B hereto.

PG&E's July 3, 2019 compliance filing in Investigation 15-08-019 is available for download at <http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=569557>.

Attachment B

Safety and Nuclear Oversight Committee

RESOLUTION OF THE BOARD OF DIRECTORS OF PACIFIC GAS AND ELECTRIC COMPANY

September 19, 2017

WHEREAS, in connection with the settlement resolving the consolidated shareholder derivative litigation seeking recovery on behalf of PG&E Corporation and Pacific Gas and Electric Company (the “Utility”) (together, the “Companies”) for alleged breaches of fiduciary duty by certain current and former officers and directors of the Companies, the Companies agreed to implement certain corporate governance therapeutics, including therapeutics relating to establishment of safety oversight committees of the Companies’ respective Boards of Directors;

NOW, THEREFORE, BE IT RESOLVED that this Board of Directors hereby establishes a Safety and Nuclear Oversight Committee, to consist of at least three directors, one of whom shall be appointed as the Committee’s chair; and

BE IT FURTHER RESOLVED that all members of the Safety and Nuclear Oversight Committee shall satisfy independence and qualification criteria established by this Board of Directors, as set forth in this company’s Corporate Governance Guidelines, and shall be “independent” as defined by standards established by any stock exchange on which securities of this company or its parent, PG&E Corporation (the “Corporation”), are traded; and

BE IT FURTHER RESOLVED that the basic responsibility of the Safety and Nuclear Oversight Committee shall be to advise and assist this Board of Directors with respect to the oversight and review of (i) policies, practices, goals, issues, risks, and compliance relating to safety (including public and employee safety), and compliance issues related to the Utility’s nuclear, generation, gas and electric transmission, and gas and electric distribution operations and facilities (“Operations and Facilities”), (ii) significant operational performance and other compliance issues related to such Operations and Facilities, and (iii) risk management policies and practices related to such Operations and Facilities. This role is one of oversight and in no way alters management’s authority, responsibility, or accountability. More specifically, with respect to such Operations and Facilities, the Safety and Nuclear Oversight Committee shall, among other things:

1. Review significant policies and issues related to safety, operational performance, and compliance.
2. Review with management the principal risks related to or arising out of the Utility’s Operations and Facilities (including risks that are identified through PG&E’s enterprise risk management program and that are selected in consultation with this Board of Directors and its committees, as applicable), and assess the effectiveness of the Utility’s programs to manage or mitigate such risks, including with respect to:
 - the safe and reliable operation of any nuclear facilities owned by the Utility;

- integrity management programs for the Utility's gas operations and facilities; and
 - asset management programs for the Utility's electric operations and facilities.
- 3. Review and discuss how the Utility can continue to improve its safety practices and operational performance.
- 4. Review and discuss the results of the Utility's goals, programs, policies, and practices with respect to promoting a strong safety culture.
- 5. Review the impact of significant changes in law and regulations affecting safety and operational performance.
- 6. Advise the Corporation's Compensation Committee on appropriate safety and operational goals to be included in PG&E's executive compensation programs and plans.
- 7. Meet at least six times per year. Such meetings shall include at least semiannual joint meetings with the Corporation's Safety and Nuclear Oversight Committee, the Utility's Audit Committee, the Corporation's Audit Committee, and the Corporation's Compliance and Public Policy Committee to discuss PG&E's compliance program and any other topics agreed upon by those committees.
- 8. (a) Review the adequacy and direction of the Utility's corporate safety function, including the appointment and replacement of any chief safety officer of the Utility (or any officer who is similarly given direct responsibility for overseeing enterprise-wide safety matters at the Utility) (the "Chief Safety Officer"), (b) review with the Chief Safety Officer the responsibilities, budget, and staffing of the Utility's safety function, (c) periodically review the Utility's safety and health functions, goals, and objectives represented in PG&E's five-year planning process, and (d) periodically review reports provided to management by the Chief Safety Officer.
- 9. Serve as a channel of communication between the Chief Safety Officer and this Board of Directors.
- 10. Meet separately with the Chief Safety Officer from time to time, at the discretion of the Chair of the Committee.
- 11. Report regularly (and at least semiannually) to this Board of Directors on deliberations and actions taken by the Committee, and issues considered and addressed as part of the Committee's oversight responsibilities.

BE IT FURTHER RESOLVED that the members of the Safety and Nuclear Oversight Committee shall periodically visit the Utility's nuclear and other operating facilities; and

BE IT FURTHER RESOLVED that the Chief Safety Officer shall regularly provide reports to the Safety and Nuclear Oversight Committee regarding (1) the status of the Utility's policies, practices, standards, goals, issues, risks, and compliance relating to safety, (2) activities relating to creation and instillation of safety culture at the Utility, (3) activities relating to establishment of and performance on safety metrics, and (4) such other topics as may be requested by the Committee; and

BE IT FURTHER RESOLVED that the Utility's Chief Ethics and Compliance Officer shall regularly provide reports to the Safety and Nuclear Oversight Committee regarding activities relating to establishment of and performance on compliance and ethics metrics related to the Utility's Operations and Facilities; and

BE IT FURTHER RESOLVED that the Safety and Nuclear Oversight Committee also may request reports from any member of senior management of the Utility, that such reports shall be provided within a reasonable time of the request, and that any dispute or unreasonable delay with respect to such a request shall be documented in the Committee's minutes; and

BE IT FURTHER RESOLVED that the Safety and Nuclear Oversight Committee shall be empowered to act independently of other committees of this Board of Directors and shall not be subject to direction or limitation by any other committee of this Board, subject to applicable legal restrictions and stock exchange standards; and

BE IT FURTHER RESOLVED that the Safety and Nuclear Oversight Committee shall fix its own time and place of meetings and shall, by a majority vote of its members, and subject to the California Corporations Code and this company's Articles of Incorporation and Bylaws, prescribe its own rules of procedure; and

BE IT FURTHER RESOLVED that the Safety and Nuclear Oversight Committee shall have the right to retain or utilize, at this company's expense, the services of such firms or persons, including independent counsel or other advisors, as the Committee deems necessary or desirable to assist it in exercising its duties and responsibilities; and

BE IT FURTHER RESOLVED that the Safety and Nuclear Oversight Committee shall have the right to request and receive from this Board of Directors reasonable resources to assist it in exercising its duties and responsibilities, and that such requests, and any failure to provide such requested resources, shall be documented and explained in the minutes of the Committee and this Board; and

BE IT FURTHER RESOLVED that, unless otherwise designated by the Committee, the Corporate Secretary of this company, or an Assistant Corporate Secretary, shall serve as secretary to the Safety and Nuclear Oversight Committee.

Attachment C

Jeffrey L. Bleich

A. Safety-Specific Education and Training

- United States Department of State (Canberra, Australia), 2009 – 2013
Ambassador to Australia
Received extensive safety trainings on natural disasters, violent assaults, cyber-threats, and other scenarios. Participated in joint exercises on safety preparedness with U.S.-based companies, particularly in defense and extractive/resource sectors. Received regular briefings on wildfires and flood risks in Australia.
- California State University Board (Long Beach, California), 2004 – 2009
Member, Board of Trustees; Vice Chair (2006 – 2008); Chair (2008 – 2009)
Developed protocols for student safety for all 490,000 students in the California State University System, and participated in safety trainings related to student safety risks at multiple California State University campuses.
- Other Government Service (Office of the White House and Office of the Director of National Intelligence) (Washington, D.C.), 2008 – 2009; 2014 – 2016
Special Counsel to the President, and Senior Advisor to the Director of National Intelligence
Received safety trainings for “high threat environments” including White House evacuation procedures, the Office of the Director of National Intelligence, and various intelligence facilities. Actively participated in developing cyber-security protocols with senior intelligence officials.
- Munger, Tolles & Olson LLP (San Francisco, CA), 1992 – 2009
Attorney
Received training as emergency response coordinator for San Francisco office. Led office response to active shooter in building during fatal shooting at a bank in the lobby of the building.
- Pacific Gas and Electric Company and PG&E Corporation (San Francisco, CA), 2019
Board Member
As a member on the PG&E Boards, including during the on-boarding process, received general information regarding safety programs and culture at the companies, and received more targeted safety training regarding, among other things, hazards and associated mitigations for field work in connection with PG&E’s gas and electric operations and power generation.

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- United States Department of State (Canberra, Australia), 2009 – 2013
Ambassador to Australia
Responsible for the safety and security of all Embassy personnel, and U.S. Forces and U.S. citizens in the Commonwealth of Australia. Participated directly in rescue missions for U.S. personnel stranded in flood waters. Participated in Talisman Sabre joint exercises, involving safety trainings for various military threat scenarios. Participated in physical assault response during three separate incidents. Received special recognition from the Australian Capital Territory fire services for leadership in connection with U.S.-Australia joint firefighting operations.
- California State University Board (Long Beach, CA), 2004 – 2009
Member, Board of Trustees; Vice Chair (2006 – 2008); Chair (2008 – 2009)
Served on the audit/risk management committee and reviewed safety protocols for evacuations relating to floods, fires, windstorms, earthquakes, and active shooters.
- Munger, Tolles, and Olson (San Francisco, CA), 1997 – 2007
Attorney
Served as lead counsel on a series of products liability cases concerning fire hazards associated with HVAC and furnace systems. As lead counsel in an action against Carrier relating to residential fires, performed extensive research with experts on systems failures, ignition mitigation, and fire forensics. As lead counsel for Trane, Inc. in litigation concerning training of personnel to ensure safe repair of commercial HVAC systems, performed extensive research and training with experts regarding safety protocols for persons servicing HVAC systems to prevent toxic substance leaks, fires, and explosions. Served as lead counsel in Microsoft's first cyber-security case and continued as principal outside counsel in its cyber-security related litigation.
- Fulbright Foreign Scholarship Board (Washington, D.C.), 2014 – Present
(appointed by President Barack Obama)
Board Chair
Participated in decision-making on safety evacuations of Fulbright students and scholars from Turkey and Sri Lanka, and confidential situations in other locations.

C. Safety-Specific Board of Directors Experience

- Nuix USG, Inc. (Novato, CA), 2016 – Present
Chair
Oversee operations at a cyber-security company. Participated in multiple cyber-security analyses involving threat mitigation for specific utilities, financial services, energy grids, water systems, and companies that participate in national security efforts. As board chair, have given presentations in Germany, London, Australia, Japan, and Singapore on cyber-threats and responses.

- State Bar of California (San Francisco, CA), 2007 – 2008
President
Participated in the development of safety protocols for law offices and courthouses in California.
- Flinders University (Adelaide, Australia), 2019, Professor at the Jeff Bleich Centre for the U.S. Alliance in Digital Technology, Security, and Governance.
Professor and Advisory Board member
Center dedicated to the study of programs to address security threats in digital technologies.

D. Other Previous and Current Board Positions

- East-West Center (Honolulu, HI), 2017 – Present
Member (appointed by Secretary of State John Kerry)
- Amherst College (Amherst, MA), 2017 – Present
Board of Trustees
- Stanford University, Center for Advanced Study of Behavioral Sciences (Palo Alto, CA), 2014 – Present
Board of Directors
- Director of National Intelligence, Senior Advisory Group (Washington, D.C.), 2014 – 2017, Member (appointed by Director of National Intelligence James Clapper)
- Pratt Family Foundation (Greensboro, NC), 2013 – 2017
Board of Advisers
- Sorensen Center for Peace and Justice, City University of New York School of Law (New York, NY), 2014 – 2018
Board of Advisers
- Sydney University, U.S. Studies Center (Sydney, Australia), 2015 – Present
Board of Advisers
- Tanium (Emeryville, CA), 2019 – Present
Board of Advisers
- Rand Corporation Australia (Manuka, Australia), 2014 – Present
Board of Advisers
- Futures Without Violence (San Francisco, CA), 2015 – Present
Board of Directors

- San Francisco Symphony (San Francisco, CA), 2014 – 2018
Board of Directors
- Australian-American Leadership Dialogue (Hawksburn, Australia), 2014 – Present
Board of Directors
- Say Hey Foundation (Menlo Park, CA), 2014 – Present
Board of Directors
- World Affairs Council of Northern California (San Francisco, CA), 2014 – Present
Board of Directors
- American Security Project (Washington, D.C.), 2014 – Present
Board of Directors
- Council on Foreign Relations (New York, NY), 2003 – Present
Elected Permanent Member
- American Law Institute (Philadelphia, PA), 2000 – Present
Elected Permanent Member
- Bar Association of San Francisco (San Francisco, CA), 2003
President
- Lawyers Committee for Civil Rights (Washington, D.C.), 1998 – 1999
Chair
- Legal Services for Children (San Francisco, CA), 2001 – 2002
Chair
- U.S. District Court for N.D. Cal. Judicial Conference (San Francisco, CA), 2003
Chair
- American Bar Association Standing Committee on Amicus Briefs (Chicago, IL), 2004 – 2009
Chair
- Barristers Club of San Francisco (San Francisco, CA), 1995
President
- Legal Aid Society of San Francisco (San Francisco, CA), 1997 – 2008
Board of Directors

- Permanent Court of Arbitration (The Hague, Netherlands), 1992 – 1993
Special Rapporteur
- Edward J. McFettridge American Inns of Court (Alexandria, VA), 1995-2008
Barrister

E. Other Current Professional Commitments

- Special Master, U.S. District Court for Northern District of California, *In re Capacitors Multi-District Litigation*; Consultant/Advisor to various private companies (San Francisco, CA), April 2019 – Present
- Clif Bar & Co, (Emeryville, CA), May 2019 – Present
Consultant/Advisor

Nora Mead Brownell

A. Safety-Specific Education and Training

- Michigan State University Institute of Public Utilities (Lansing, MI), 1998
Received training on regulatory oversight responsibilities, including maintaining the safety of water, gas, and electric utility operations.
- University of Idaho (Moscow, ID), 2001
Taught class on regulatory oversight, including oversight of safety, with a particular focus on cyber-security.
- National Regulatory Research Institute (Silver Spring, MD), 1998
Received regulatory training for new members of the Pennsylvania Public Utilities Commission, which included training on safety in the utility context.
- Pennsylvania Public Utilities Commission (Harrisburg, PA), 1997 – 2001
Commissioner
Received training on a regular basis regarding the safety of electric and gas utilities and regarding the safety of water systems.
- Federal Energy Regulatory Commission (FERC) (Washington, D.C.), 2001 – 2006
Commissioner
Received trainings on safety issues related to hydroelectric assets, liquefied natural gas facilities, cyber-security, and pipelines. Also received Top Secret briefings on cyber-security and critical infrastructure. Attended meetings with the Nuclear Regulatory Commission (NRC) on nuclear security and received additional training on cyber exposure for infrastructure from various government agencies like Department of Energy, National Renewable Energy Laboratory, and Department of Homeland Security, as well as at private organizations including Idaho Laboratory and the New York Stock Exchange. In addition, FERC conducted regular safety briefings from project engineers on pipeline, hydroelectric generation facilities, and transmission infrastructure.
- Quanta Services (Houston, TX), 2017
Received “live line” safety training and pole/wire/job site training at the Quanta Training Center, which addressed safely working with transmission capacity.
- National Grid, PLC (United Kingdom/Northeast U.S.), 2012 – 2019
Received recurring executive safety trainings, including attending and reviewing the electric apprentice training at Eakring—the National Grid Training Center—on safely working with electrical infrastructure.

- Pacific Gas and Electric Company and PG&E Corporation (San Francisco, CA), 2019
Board Member
As a member on the PG&E Boards, including during the on-boarding process, received general information regarding safety programs and culture at the companies, and received more targeted safety training regarding, among other things, hazards and associated mitigations for field work in connection with PG&E's gas and electric operations and power generation.
- Regularly participate in utility industry conferences, seminars, and policy-making meetings. A subset where safety issues were discussed are:
 - Edison Electric Institute Conference (San Francisco, CA), 2013
 - Harvard Energy Policy Group 78th Plenary Session (Half Moon Bay, CA), 2015
 - Aspen Institute Energy Policy Forum (Aspen, Colorado), 2003 – 2012; 2015
 - Bridging the Cybersecurity Governance Gap Webinar, Directors and Boards, 2015
 - Credit Conversations: Corporate Ratings and Counterparty Risk Assessment Webinar, Standard & Poor's, 2015
 - Cyber Risk Management in the Digital Age, New York Stock Exchange, 2015
 - National Academy of Sciences *Power of Change* select committee briefings with House Committee on Science, Space & Technology, Representative Joe Barton (TX), Representative Paul Tonko (NY), Dr. Franklin Orr (Dept. of Energy Under Secretary for Science and Energy), and Senate Energy and Natural Resources Committee (Washington, D.C.), 2016
 - Meeting with Senator Chris Coons' senior advisor, Franz Wuerfmannsdobler, regarding energy innovation efforts and regional resources (Washington, D.C.), 2016
 - Harvard Energy Policy Group 89th Plenary Session (Palm Beach, Florida), 2018
 - Harvard Energy Policy Group 91st Plenary Session (panelist – HEPG: 25 Years Old – Looking Back, Looking Forward) (Cambridge, Massachusetts), 2018

- Utility Perspectives (various locations in the United States and Canada), 2005 – 2019
Panel moderator – Grid Modernization & Financial Implications (Toronto, Canada), 2018
- State of the Electric Utility: 2019 Survey Trends Webinar panelist, Industry Dive, 2019

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- Pennsylvania Public Utility Commission (Harrisburg, PA), 1997 – 2001
Member of the Pennsylvania Public Utility Commission
Performed a number of safety related responsibilities as a Commissioner. Under the Public Utility Code, an electric utility in Pennsylvania has a legal duty to maintain safe, adequate, and reasonable service and facilities and to make repairs, changes, and improvements that are necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. Pursuant to its statutory powers, the Commission is authorized to adopt and enforce rules to ensure that electric distribution companies (EDCs) provide safe, adequate, and reliable service. Commission ensures that EDCs adhere to established industry standards and practices, such as the national standards of the National Electric Safety Code, regarding the installation and maintenance of transmission and distribution facilities.

The PUC also has oversight responsibility for gas local distribution companies (LDCs), investor-owned water companies, intrastate shipping companies, telecommunications, and taxi cabs. As a Commissioner, regularly reviewed the safety performance of these companies. During tenure, also conducted site visits to a number of locations, including Three Mile Island, customer call centers, LDCs, water companies, and performed safety inspections.

- Federal Energy Regulatory Commission (FERC) (2001 – 2006)
FERC Commissioner
Major developments during tenure included the transition of the North American Reliability Corporation to FERC oversight. Conducted hundreds of site visits, including trips to pipelines, hydroelectric plants, nuclear facilities, generation plants, equipment manufacturers, liquefied natural gas (LNG) plants, solar, wind and battery facilities, and transmission control rooms.

In this role, also toured LNG terminals in Portugal, Spain, and the United States, and developed appropriate licensing procedures for LNG import plants in Maryland, Georgia, Massachusetts, and proposed terminals in Alaska, which included developing appropriate safety standards as part of the licensing process. Visited at least 15 hydroelectric plants in the western United States to assess safety, environmental, national security concerns, as well as tribal issues during

relicensing procedures. During site visits, reviewed safety procedures for new pipeline infrastructure that was being contemplated at the various locations in Alaska, including North Slope, Seward, and Prince William Sound.

C. Safety-Specific Board of Directors Experience

- National Grid (United Kingdom/Northeast U.S.), 2012 – 2019
Safety, Environment, and Health Committee; Remuneration Committee
Oversaw process safety restructuring, reviewed root cause analysis of safety incidents, and conducted site visits focused on safety performance for several electric utility companies over a period of seven years. Conducted an average of 6-7 site visits per year. A typical visit involved reviews of key safety related operations, including the control room, the Cyber Security Operations Center, and the Gas Dispatch and Gas Control rooms (for a gas operations facility). For example, a November 9, 2017 site visit to Bacton Gas Terminal, a complex of six gas terminals in the United Kingdom, included a review of safety training and safety operations as well as a simulated exercise and debriefing with employees, national security personnel and local police of an outside attack on the control room of this critical infrastructure asset. Actively reviewed safety performance metrics, and incidents. Received extensive safety training as part of this role.

As a member of the Safety, Environment, and Health Committee, received reports from global safety directors seven times per year on safety metrics, and detailed reviews of major incidents, reviews of government compliance issues and rules in the United States, United Kingdom, Massachusetts, Rhode Island, and New York. Had oversight responsibility over safety metrics and compliance at each of the nine board meetings each year.

Also received additional outside subject matter briefings by cyber-security, and other experts at least once a year. Together with other board members, engaged in periodic deep dives into extreme safety events, such as Hurricane Sandy.

- Spectra Energy Partners (Houston TX), 2007 – 2018
Board Member, Audit and Conflicts Committee
Reviewed Safety and Operation statistics and incidents at each meeting, including routine discussion of procedural and system changes required to maintain high performance metrics.
- ONCOR, Inc. (Dallas TX), 2007 – 2014
Board Member, Audit Committee
Board members routinely reviewed all critical safety metrics and incidents. Participated in annual North American Electric Reliability Corporation cyber-security exercise. In transitioning to an upgraded transmission and distribution grid, visited numerous equipment manufacturers, the Walmart Emergency Operations Center, and the ONCOR center for recycling critical equipment to fulfill our sustainability commitment.

- National Association of Regulatory Utility Commissioners (NARUC), 2000 – 2001
President
Oversaw the development of the Committee agenda for NARUC meetings, which included a discussion of safety concerns in the industry.

D. Other Previous and Current Board Positions

- Comverge, Inc. (Atlanta GA), 2007 – May, 2012; December, 2012 – 2014
Board Member, Compensation Committee (2007 – May, 2012), Chair (2010 – 2011), Regulatory Committee (December 2012 – 2014)
- Ener1 (Greenfield, IN), 2010 – 2012
Board Member
- Leaf Clean Energy (Cayman Islands), 2008 – 2009
Board Member
- Times Publishing, (Erie PA), 1996 – 2016
Board Member
- Tangent Energy Solutions, Inc. (Kennett Square, PA), 2000 – 2019
Board Member
- Millennium Bank (Philadelphia/Malvern, PA), late 1980s - mid 1990s
Board Member
- Morgan Stanley Infrastructure Advisory Board (New York, NY), 2014 – Present
Advisory Board Member
- TerViva Bioenergy (Oakland, CA), 2012 – 2017
Board Member
- Direct Energy Advisory Council (Houston, TX), 2014 – 2017
Advisory Board Member
- New World Capital Group (New York, NY), 2009-2016
Advisory Board Member
- Starwood Energy Fund (New York, NY), 2006 – 2014
Board Member
- Gridwise Architecture Council (Richland, WA), 2008 – 2009
Board Member

- Lockheed Martin FERC ITSS Technical Advisory Group (Rockville, MD), 2014 – 2015
Advisory Board Member
- North American Energy Standards Board (NAESB) (Houston, TX), 2013 – 2014
Advisory Board Member
- Women’s Council on Education and Environment (Washington D.C.), 2006 – 2008
Advisory Board Member
- She Should Run (Washington D.C.), 2013 – 2015
Board Member
- Regional Performing Arts Center (Philadelphia, PA), 1996 –1997
Board Member
- Philadelphia Free Library (Philadelphia, PA), late 1990s
Board Member
- Foundation for Architecture (Philadelphia, PA), late 1990s
Board Member
- Need in Deed (Philadelphia, PA), late 1990s
Board Member

E. Other Current Professional Commitments

- Alexandria Families for Safer Streets (Alexandria, VA), 2017 – present

Frederick W. Buckman

A. Safety-Specific Education and Training

- Ph.D. in Nuclear Engineering, Massachusetts Institute of Technology (Cambridge, MA), 1970
Coursework included instruction on nuclear reactor safety. Ph.D. thesis involved the study of reactor safety in boiling water reactors.
- Industry experience in nuclear operations, power generation, transmission and distribution, and power plant construction included regular safety briefings on workplace safety, radiation protection, emergency preparedness and working in confined spaces.
- Pacific Gas and Electric Company and PG&E Corporation (San Francisco, CA), 2019
Board Member
As a member on the PG&E Boards, including during the on-boarding process, received general information regarding safety programs and culture at the companies, and received more targeted safety training regarding, among other things, hazards and associated mitigations for field work in connection with PG&E's gas and electric operations and power generation.

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- Shaw Power Group (Charlotte, NC), 2009 – 2010
President and CEO
Responsible for operations at a division tasked with the design and construction of six domestic nuclear units, four international nuclear units, seven coal units, and several combined gas cycle units. Oversaw over 21,000 employees, most of whom were field personnel. Prioritized instilling a strong safety culture at the line-level: Each construction site visitor received a four-hour safety briefing, and each employee received approximately 40 hours of workplace safety training.
- Trans-Elect (Reston, Virginia), 1999 – 2007
Chair and CEO
Trans-Elect is an independent company dedicated to the ownership, operation, and development of electric transmission assets. During tenure, Trans-Elect purchased and then operated two electric transmission companies in North America, and constructed "Path 15"—an 84 mile electric power transmission corridor in California. Each of these projects involved a focus on electrical transmission safety.

- PacifiCorp (Portland, OR), 1994 – 1998
President and Chief Executive Officer
Responsible for all operational aspects, including safety, for an electric generation, transmission, and distribution system, as well as a telephone local exchange company. Electrical generation, transmission, and distribution businesses operated in seven states, including Northern California. Also oversaw operations and safety at several coal mines.
- Consumers Power Company (Jackson, MI), 1986 – 1994
CEO (1992 – 1994); President (1988 – 1994); Senior Vice President for Energy Supply (1987 – 1988); Vice President and Chief Nuclear Officer (1986 – 1987)
As Vice President and Chief Nuclear Officer, was responsible for operations, safety, licensing, and emergency planning at the Big Rock Point and Palisades nuclear plants. Included responsibility for offsite safety issues—including plant safety analysis, licensing, emergency planning, site security, and workplace safety—for approximately 1,000 employees. As Senior Vice President for Energy Supply, those responsibilities extended to all generating facilities in the Consumers Power system.

As President, and later President and CEO, had responsibility for all aspects of Consumers Power’s operations. Instituted a “presidential review” of each lost workday caused by a safety incident, in order to facilitate root cause analysis and implement corrective action, as well as to elevate overall safety visibility in the company and improve safety performance. During this six-year period, Consumers Power won the National Safety Council award for the Nation’s best safety performance by a combined gas and electric utility three times.

C. **Safety-Specific Board of Directors Experience**

- Solomon Corporation (Solomon, KS), 2013 – Present
Board Member
During tenure, the Board challenged the management team to upgrade both the safety performance and the safety culture at the organization. In the following years there was an approximately six-fold increase in overall safety performance as measured by the total recordable incident rate.
- General Fusion (Burnaby, Canada), 2013 – Present
Board Chairman and Chairman of the Compensation Committee
Currently working with management to establish a strong safety culture.
- Osmose Corporation (Peachtree City, GA), 2014 – 2015
Board Member
Osmose is a company that is responsible for inspection and repair of distribution poles, transmission towers, and related structures. Board-level responsibilities include oversight for safety processes.

- Quanta Services (Houston, TX), 2011 (Approximate)
Board Member
Quanta Services is a large contractor performing engineering, procurement and construction services in the electric transmission and gas pipeline businesses. Board-level responsibilities include oversight for safety processes.
- InfraSource (Lenexa, KS), 2007 – 2010 (Approximate)
Board Member
InfraSource provides construction and professional engineering services to natural gas, oil, and electric industries, with a commitment to safety and quality.
- Trans-Elect (Reston, Virginia), 1999 – 2006
Chair
Trans-Elect was a company engaged in the acquisition, construction and operation of electric transmission assets. In addition to responsibilities as President and CEO, exercised oversight of operations, including safety performance.
- PacifiCorp (Portland, OR), 1994 – 1998
Board Member
PacifiCorp is a multi-state vertically integrated electric utility. Also provided multi-state telephone local exchange services.
- CMS Energy (and Consumers Power Company) (Jackson, MI), 1987 – 1994
Board Member
CMS Energy (holding company) and Consumers Power Company provided electric and gas service to about 1.6 million and 1.5 million customers, respectively, in Michigan. As a senior officer of the utility, served on both the utility and parent Board for approximately seven years, with oversight responsibility for company operations.

D. Other Previous and Current Board Positions

- Oregon Health and Science University (Portland, OR), 1995 – 2003
- StanCorp Financial Group (Portland, OR), 1996 – Present
- Waverley Country Club (Portland, OR), 2008 – 2010 (dates approximate)
- SPG Solar (Novato, CA), 2011 – 2015 (dates approximate)
- Gradient Resources (Reno, NV), 2012 – 2015 (dates approximate)
- Terrestrial Energy (New York, NY), 2016 – Present
- Contract Land Staff (Sugar Land, Texas), 2016 – 2017

- Waverley Historic Foundation (Portland, OR), 2017 – Present
- Nuclear Mutual Limited (Hamilton, Bermuda), dates of service unknown
- Nuclear Electric Insurance Company Limited (Hamilton, Bermuda), dates of service unknown
- Association of Edison Illuminating Companies (AEIC) (Birmingham, AL), dates of service unknown

E. **Other Current Professional Commitments**

- N/A

Cheryl F. Campbell

A. Safety-Specific Education and Training

- Xcel Energy (Denver, CO), 2004 – 2018
Senior Vice President (2011 – 2018); Vice President—Colorado Operations (2009 – 2011); Director, Asset Strategy (2004 – 2009)
Participated in a number of safety programs and trainings, including several focused on developing safe workplace practices and behaviors, safety leadership, safety culture, identifying hazards, and behavioral safety in general. Participated in a number of safety meetings annually—including monthly work group safety meetings, quarterly regional safety meetings (with line workers), and annual working foreperson conferences for linepersons and fitters (which discussed safety issues at the line level, understanding risk, and communicating safety concerns with co-workers who are not following safety procedures). Also interacted regularly with safety speakers at these annual conferences, including individuals who had suffered serious injuries from safety incidents in the utility industry. Routinely interacted with and spoke about safety at annual safety kick-off meetings, mid-year safety campaigns, and on regular crew visits in the field.
- Pacific Gas and Electric Company and PG&E Corporation (San Francisco, CA), 2019
Board Member
As a member on the PG&E Boards, including during the on-boarding process, received general information regarding safety programs and culture at the companies, and received more targeted safety training regarding, among other things, hazards and associated mitigations for field work in connection with PG&E's gas and electric operations and power generation.

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- Xcel Energy (Denver, CO), 2004 – 2018
Senior Vice President (2011 – 2018); Vice President—Colorado Operations (2009 – 2011); Director, Asset Strategy (2004 – 2009)
As Senior Vice President, led the gas business unit across eight states with 2 million customers. Responsible for both employee and public safety. Member of the Executive Safety Team, which met quarterly with the Corporate Safety VP to review and discuss successes as well as continuous improvement for safety overall. Performance metrics in both areas improved significantly during tenure in both the gas unit and enterprise wide.

Also served as Chair, President and CEO of WestGas InterState, Inc., a FERC-regulated interstate gas pipeline subsidiary of Xcel Energy.

As VP of Colorado Operations, responsible for gas operations within the state of Colorado. Began the first in-line inspection (pigging) program at Xcel Energy in Colorado in 2008. Successfully led efforts to develop a distribution asset renewal

program, focused on leak prone pipe (cast iron, bare steel, and early polymers)—obtaining support from both senior executives and the Colorado PUC. This program was later rolled into Xcel Energy’s Distribution Integrity Management Program (DIMP). Met regularly with field employees—at job sites and service centers—discussing safety and challenges.

As Director of Asset Strategy, led the development of integrity management programs, which are developed to reduce the risk of and improve the safety of key infrastructure. Included developing programs for performing maintenance, hydrostatic pressure testing, well testing, and processes for testing and replacing assets. Also improved record keeping and data processes across a number of areas, including asset data, maintenance records, and inspection information. Developed a data-driven risk management system in partnership with various state public utility commissions to assess risk, and set acceptable risk levels. Was a member of the Executive Safety Team from 2011 to retirement in 2018. Met quarterly to discuss safety progress, culture change, and safety culture issues. Provided direction to the Corporate Safety department on the effectiveness or specific safety programs. Regularly met with line-level employees and the technical staff, along with the safety leadership team, to discuss current safety issues and potential safety issues. Attended quarterly employee driven safety meetings, where employees would raise safety issues or concerns. Workshopped solutions to quickly implement responses to those concerns together with employees and the safety leadership team.

Worked with the Corporate Vice President for Safety to set annual safety performance targets, review program effectiveness, discuss enterprise-wide as well as gas-specific safety concerns, and identify best practices at peer firms. Also worked closely with the Xcel Energy Board of Directors, particularly the Safety and Operational Committee, to discuss gas asset risks and safety culture, safety management systems, and related topics.

In addition to the regular quarterly meetings on the Safety Executive Team, and quarterly employee-led safety meetings, met monthly with gas leaders across the enterprise from 2012 to 2018 to discuss employee and public safety issues. Focus was on close calls/near misses, incidents where employees had failed to follow safety procedures, safety management systems, and effectively implementing “change management.” Began implementation of American Petroleum Institute Recommend Practice 1173, concerning the development of an Enterprise Safety Management System. Completed the initial analysis and stages or implementation during tenure.

- Colorado Interstate Gas Company (Colorado Springs, CO), 1984-2003
Variety of positions, including Engineer to Director.
Experience includes design, operations, strategic planning, mid-stream operations, supply management and regulatory (FERC). All leadership positions included responsibility for safety of the employees and public around system infrastructure.

Member of the leadership team during the implementation of one of the first comprehensive In-line Inspection (ILI) programs in the country—now an industry standard.

- Gold Shovel Association (Tempe, AZ), January 2019 to Present
Executive Director
Lead non-profit organization aimed at reducing damage to underground infrastructure, including, gas, electric, water, and telecommunications infrastructure, during excavations. Companies that participate have seen significant reductions in the damage caused during excavations. PG&E and the City of Sacramento are members of the Association.

C. **Safety-Specific Board of Directors Experience**

- American Gas Association Operations Management Committee (Washington, D.C.), 2009 – 2018
Executive Committee Member, Operations Management Committee Chair (2017)
Group meets regularly to discuss overall gas operations and safety-specific issues, including public safety, worker safety, and cyber-security. Group consists of senior industry leaders representing about 45 companies across the nation, representing the majority of customers and assets in the gas industry. Participated in meetings in the aftermath of the San Bruno tragedy and other incidents to develop proactive industry positions on improving safety and operations. Also regularly attended annual Executive Safety Summits, focusing on industry hazards, safety management systems, safety culture, interacting with local emergency responders, worker safety, and damage prevention. Participated in the AGA Peer Review program—with Xcel Energy being reviewed in 2015. As part of that commitment/participation, acted as the Executive peer reviewer for ConEd. The program is a one-week intense review of a company’s programs around safety and operations, including employee interviews and site visits. At the end of the week, the Executive peer reviewer provides the company with feedback on leading practices as well as opportunities for improvement.
- Department of Transportation Gas Pipeline Advisory Committee (GPAC) (Washington, D.C.), 2014 – 2018
Member
The GPAC is an integral part of the process for making changes to the federal safety regulations for gas pipelines. It includes representatives from industry, government and the public. During tenure on the GPAC, the group discussed regulatory updates/changes to a wide variety of safety regulations including pipeline integrity management (transmission and distribution), plastic piping, construction inspection, damage prevention, management of change Operator Qualification, and record keeping. Also discussed and provided guidance on the implementation of congressional mandates passed in the wake of the San Bruno tragedy. Participated in a task force aimed at reducing barriers to implement pipeline safety management systems (SMS). Worked with industry groups and

individual companies to assess SMS adoption and implementation status, and assess impediments to rapid implementation.

- Dynamic Risk (Calgary, Canada), December 2018 – present
Consultant and Independent Panel Member
The Massachusetts Department of Utilities retained Dynamic Risk to perform an assessment of the safety and integrity of gas infrastructure within the state of Massachusetts after the Merrimack Valley event in September, 2018. As an Independent Review Panel member, reviewed 11 companies—including investor-owned utilities, privately-owned providers, and municipal utilities—including plans and programs, Operations & Maintenance manuals, work procedures, and overall operations. Phase 1 is complete and the report is available online. Phase 2 is underway and will include worksite visits and further discussions around worker procedures, integrity programs, and overall effectiveness of programs. The evaluation is based on the “Plan/Do/Check/Act” cycle, which is an integral part of safety management systems. Phase 2 is expected to be complete in late 2019.

D. Other Previous and Current Board Positions

- Hoffman Southwest (Orange County, CA), 2018 – Present
Independent Director, Audit Committee Member
- Colorado Oil & Gas Association (Denver, CO), 2010 – 2018
Director
- Engineering Advisory Council—College of Engineering, Colorado University, Boulder (Boulder, CO), 2016 – 2018
Member
- Building Opportunity Through Leadership & Diversity (BOLD) —College of Engineering, Colorado University, Boulder (Boulder, CO), 2012 – 2015
Advisory Council Member
- Public Education and Business Coalition (PEBC) (Denver, CO), 2010 – 2014
Member of the Finance Committee
- Junior Achievement of Southern Colorado (Colorado Springs, CO), 1990 – 2002
Board Member, Member of Strategic Planning Committee

E. Other Current Professional Commitments

- N/A

Fred J. Fowler

A. **Safety-Specific Education and Training**

- Pacific Gas and Electric Company & PG&E Corporation (San Francisco, CA), 2012 – Present
Board Member
As a member on the PG&E Boards, received safety trainings on topics appropriate for Board-level oversight of safety, including presentations from nationally recognized safety experts from outside PG&E, in addition to regular briefings regarding PG&E safety programs, progress, and culture. The safety trainings included presentations by Todd Conklin on a variety of topics related to safety, including safety culture, safety systems, safety leadership and governance, and identifying safety problems and solutions (December 20, 2017; April 16, 2018; May 23, 2018; and December 11, 2018). Mr. Conklin is a Senior Advisor for Organizational and Safety Culture at Los Alamos National Laboratory and a nationally recognized expert in organizational safety culture.

B. **Direct, Supervisorial or Management Level Safety-Specific Work Experience**

- Over a 20 year career leading various organizations involving natural gas, natural gas liquids, and electric operation units, worked closely with management teams to develop, monitor and make adjustments for improvements to their safety programs. These organizations have consistently achieved top quartile and top decile safety performance as measured against industry peer companies.
- Spectra Energy Corp. (Houston, TX), 2006 – 2009
President and CEO
Responsible for overall financial and operating results of all Spectra Energy assets. During that period, every business unit achieved top quartile or better safety performance as measured by their various industry association's safety indexes.
- Duke Energy (Charlotte, NC), 2002 – 2006
President and COO
As Chief Operating Officer, was responsible for the overall operating results of all the businesses. Between 2002 and 2006, all of Duke Energy's various businesses achieved top quartile safety performance in each of their business lines versus industry peers.
- Trunkline Gas Co. (Houston, TX), 1991-1993
President with responsibility for overall operations, including safety, and financial results of the company, which was an interstate natural gas pipeline system transporting gas from the U.S. Gulf Coast to the upper Midwest industrial market.
- Texas Eastern Transmissions Company (Houston, TX) 1994 – 1998

President with responsibility for overall operations, including safety, and financial results of the company, which was a major interstate natural gas pipeline transporting gas from the U.S. Gulf Coast to Northeast U.S. markets.

- Duke Energy Corporation (Houston, TX), 1998 – 2002
Group President of Transmission for Duke Energy Corp. responsible for overall operations, including safety, and financial results for all of the company’s interstate gas pipelines including the previously named pipelines, as well as:
 - Panhandle Eastern Pipeline Company (Houston, TX)
An Interstate natural gas pipeline delivering midcontinent gas reserves to the upper Midwest residential and industrial markets.
 - Algonquin Gas Transmissions Company (Boston, MA)
An interstate gas pipeline serving the New England market.
 - West Coast Transmissions Company (Calgary, Canada)
A Canadian natural gas pipeline delivering British Columbia and Alberta gas reserves to Western and Midwest U.S., Central, and Eastern Canadian markets.
 - DCP Midstream Partners (Denver, CO)
The largest processor of natural gas in the U.S. and a natural gas gatherer and transporter and marketer of natural gas and natural gas liquids.

C. Safety-Specific Board of Directors Experience

- PG&E Corporation and Pacific Gas and Electric Company Safety and Nuclear Oversight Committees (2017 – present); PG&E Corporation Nuclear, Operations, and Safety Committee (2012 – 2017)
The PG&E Corporation and Pacific Gas and Electric Company Safety and Nuclear Oversight Committees (and before that, the PG&E Corporation Nuclear, Operations, and Safety Committee) oversee matters relating to safety, operational performance, and compliance issues related to Pacific Gas and Electric Company’s nuclear, generation, gas and electric transmission, and gas and electric distribution operations and facilities (“Operations and Facilities”), including (i) principal risks arising out of the Operations and Facilities, the process used by management to analyze and identify these risks, and the effectiveness of programs to manage or mitigate these risks; (ii) Pacific Gas and Electric Company’s goals, programs, policies, and practices with respect to promoting a strong safety culture; and (iii) periodically visiting Pacific Gas and Electric Company’s nuclear and other operating facilities.
- Encana Corporation (Calgary, Canada), 2010 – Present
Corporate Responsibility, Environmental, Health and Safety Committee

Responsible for oversight of safety performance, environmental impact, and promoting good corporate citizenship. Encana rated as a top decile Safety Performer for the past two years according to the Canadian Association of Petroleum Producers and American Exploration & Production Council Safety Indexes.

- Spectra Energy Partners LLP (Houston, TX), 2008 – 2017
Chair of the Board
Oversight responsibility for operations, including safety. This company had top decile or top quartile performance during that period for Large Interstate Pipeline Companies as measured by the Interstate Natural Gas Association of America's safety index.
- DCP Midstream Partners LP (Denver, CO), 2007 – Present
Chair of the Board (2007 – 2009); Board Member (2015 – Present); Audit Committee (2015- Present)
During the past two years DCP Midstream Partners has had the top safety rating for Large Midstream Companies as measured by the Gas Processor's Association Safety Index.
- Spectra Energy Corp. (Houston, TX), 2006 – 2009
Board Member, President and CEO
Spectra Energy was one of the major North American Interstate pipeline companies transporting natural gas from all major U.S. and Canadian producing areas to natural gas markets in the Northwest, Midwest and the East Coast U.S. markets as well as Central and East Coast markets in Canada. Also owned 50% of DCP Midstream, which is the largest natural gas processor in the U.S. as well as a natural gas and natural gas liquids transporter and marketer. Safety was a major focus at every level, including at the board, and among senior management.
- Chair of the Pipeline Safety Task Force of the Interstate Natural Gas Association of America (Washington, D.C.), 1998 – 2000.
The Pipeline Safety Task Force of the Interstate Natural Gas Association was established to improve security practices in the industry, and improve inter-governmental coordination to enhance safety.
- TEPPCO Partners, LP (Houston, TX), 1998 – 2003
Vice Chairman of the Board
TEPPCO operated an interstate pipeline system delivering refined petroleum products from the Gulf Coast to Northeast U.S. markets. Board has oversight responsibility for all operations, including safety.
- The Gas Research Institute (Chicago, IL), 1997 – 2002
Board Member
Responsible for the governance of a federal government formed research and development group focused on new technologies for the natural gas industry.

D. Other Previous and Current Board Positions

- Arts and Science Council of Charlotte North Carolina, 2002 – 2006
- Interstate Natural Gas Pipeline Association (Washington, D.C.), 1998 – 2005
Board Member, Chairman of the Board (2003)
- United Way of Houston, 1996 – 2002
- Houston Partnership (Houston Chamber of Commerce), 1998 – 2001, 2006 – 2008.

E. Other Current Professional Commitments

- N/A

Eric D. Mullins

A. Safety-Specific Education and Training

- Pacific Gas and Electric Company & PG&E Corporation (San Francisco, CA), 2016 – Present
Board Member
As a member on the PG&E Boards, received safety trainings on topics appropriate for Board-level oversight of safety, including presentations from nationally recognized safety experts from outside PG&E, in addition to regular briefings regarding PG&E safety programs, progress, and culture. The safety trainings included presentations by Todd Conklin on a variety of topics related to safety, including safety culture, safety systems, safety leadership and governance, and identifying safety problems and solutions (December 20, 2017; April 16, 2018; May 23, 2018; and December 11, 2018). Mr. Conklin is a Senior Advisor for Organizational and Safety Culture at Los Alamos National Laboratory and a nationally recognized expert in organizational safety culture.

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- Lime Rock Resources (Houston, TX), 2005 – Present
Co-Chief Executive Officer & Managing Director
Leads a company that operates oil and gas facilities, with responsibility for safe operations for a workforce of over 200 full-time employees as well as numerous independent contractors. Designated a safety training program for all field employees, and implemented a new employee safety training program. Established monthly safety meetings to discuss work conditions, consider safety innovations, and reinforce workplace safety culture.

C. Safety-Specific Board of Directors Experience

- PG&E Corporation and Pacific Gas and Electric Company Safety and Nuclear Oversight Committees (2017 – present); PG&E Corporation Nuclear, Operations, and Safety Committee (2017)
The PG&E Corporation and Pacific Gas and Electric Company Safety and Nuclear Oversight Committees (and before that, the PG&E Corporation Nuclear, Operations, and Safety Committee) oversee matters relating to safety, operational performance, and compliance issues related to Pacific Gas and Electric Company's nuclear, generation, gas and electric transmission, and gas and electric distribution operations and facilities ("Operations and Facilities"), including (i) principal risks arising out of the Operations and Facilities, the process used by management to analyze and identify these risks, and the effectiveness of programs to manage or mitigate these risks; (ii) Pacific Gas and Electric Company's goals, programs, policies, and practices with respect to promoting a strong safety culture; and (iii) periodically visiting Pacific Gas and Electric Company's nuclear and other operating facilities.

- Anadarko Petroleum Company (The Woodlands, TX), 2012 – Present
Audit Committee Chair
Regularly review safety data, and safety performance metrics for an oil and natural gas exploration business. During tenure, Anadarko has maintained a company-wide focus on safety and achieved industry-leading safety performance as measured by the number of total recordable incidents per 100 workers. Board members are responsible for setting operational, financial, and safety goals.

D. Other Previous and Current Board Positions

- Baylor College of Medicine (Houston, TX), 2016 – Present
Board Member
- LRR Energy, LP (Houston, TX), 2011 – 2015
Chair of the Board, Co-CEO
- Wheeler Avenue Baptist Church (Houston, TX), 2015 – Present
Trustee

E. Other Current Professional Commitments

- N/A

Kristine M. Schmidt

A. Safety-Specific Education and Training

- Northern States Power Company (Minneapolis, MN), 1992 – 2000
Manager, Wholesale Market Services (1992 – 2000)
Director, Gas Sales, Marketing & Business Development (1997 – 2000)
Completed annual required employee safety trainings. Participated in regularly scheduled “safety moments”—which were safety guides for work performed throughout the company including environmental, work area, moving vehicle and office hazards—and received regular safety performance updates from field and office managers detailing results and actions for improvement. From 1997 to 2000, as a member of senior management, attended safety trainings with crews and office personnel during regularly scheduled safety meetings.

- Federal Energy Regulatory Commission (FERC) (Washington, D.C.), 2003 – 2006
Technical Advisor to FERC Commissioner Nora Mead Brownell
Received trainings on safety issues related to hydroelectric assets, liquefied natural gas facilities, cyber-security, and pipelines. Also received Top Secret briefings on cyber-security and critical infrastructure. Attended meetings with the Nuclear Regulatory Commission on nuclear security.

- Xcel Energy (Minneapolis, MN), 2006 – 2009
Director, Federal Regulatory Affairs
Director, Transmission Business Development
Completed annual required employee safety trainings. Participated in monthly “safety moments” and received regular safety updates on company and contractors’ performance. Received regular and annual safety training, as was mandatory under the company’s safety compliance program.

- ITC Great Plains, LLC (Topeka, KS), 2012 – 2015
President, and Vice President of ITC Holdings, Inc.
Completed annual safety training required for all employees. Participated in monthly “safety moments” and received regular safety performance updates on company and contractors’ performance. Also engaged in weekly safety discussions with management teams. Substantially all meetings attended began with safety tips, which included safety guidance for work performed throughout the company including environmental, work area, and office hazards.

- Pacific Gas and Electric Company and PG&E Corporation (San Francisco, CA), 2019
Board Member
As a member on the PG&E Boards, including during the on-boarding process, received general information regarding safety programs and culture at the companies, and received more targeted safety training regarding, among other

things, hazards and associated mitigations for field work in connection with PG&E's gas and electric operations and power generation.

B. Direct, Supervisorial or Management Level Safety-Specific Work Experience

- Over 35 years of experience in the energy sector, including senior management positions with operational responsibilities at electric and gas utilities. These roles have involved regular safety training, meeting with line-level crews working on high-voltage transmission lines, and overseeing the development of compliance processes at a major utility.
- Peak Utility Services Group, LLC (Arvada, CO), 2018
CEO
While CEO, had full profit and loss responsibility, operational oversight, and safety, risk management, and compliance accountability for an organization providing repair, replacement, routine maintenance, and upgrade construction services for telecommunications, electric, and natural gas utilities. Attended crew safety meetings, spoke with employees having safety events to discuss lessons learned, and discussed high safety performance as an overarching corporate objective and competitive advantage.
- ITC Great Plains, LLC (Topeka, KS), 2012 – 2015
President, and Vice President of ITC Holdings, Inc.
Attended safety meetings with crews constructing high-voltage transmission lines in Kansas and Oklahoma. Reported on safety issues, safety performance, and safety concerns to the senior executive team, and participated in safety culture and performance discussions with senior executives on a regular basis.
- Xcel Energy (Minneapolis, MN), 2006 – 2008
Director, Federal Regulatory Affairs
Director, Transmission Business Development
As Director of Federal Regulatory Affairs, created and implemented Xcel Energy's first federal compliance program, including compliance with all North American Electric Reliability Corporation mandatory reliability standards, which included physical and cyber-security. Oversaw all federal regulatory filings before FERC. Toured critical bulk power facilities, including power plants, high-voltage transmission lines, substations, control centers, distribution systems, and crew service centers.
- Federal Energy Regulatory Commission (Washington, D.C.), 2003 – 2006
Technical Advisor to FERC Commissioner Nora Mead Brownell
Served as principal technical advisor on energy markets. Areas of expertise included reliability matters, infrastructure sufficiency, and security concerns.
- Northern States Power Company (Minneapolis, MN), 1992 – 2000
Manager, Wholesale Market Services (1992 – 2000)

Director, Gas Sales, Marketing & Business Development (1997 – 2000)
As Director, Gas Sales, Marketing & Business Development, attended monthly senior executive meetings to discuss safety performance and culture. Also participated in weekly discussions and reporting of safety issues, performance, and culture for a gas utility. Approved safety goals, budgets, and targets. Member of the Crisis Response Executive Team formed in response to the December 11, 1998 natural gas explosion in Saint Cloud, MN.

C. Safety-Specific Board of Directors Experience

- N/A

D. Other Previous and Current Board Positions

- Western Energy Imbalance Market Governing Body (CA), 2016 – 2019
Board Member; Chair (2016 – 2017)
- Advancing Women in Energy, Association for Attracting and Retaining Women in Energy (Lansing, MI), 2016 – 2019
- Oklahoma Chamber of Commerce (Oklahoma City, OK), 2012 – 2015
Board Member
- Oklahoma Business Roundtable Member (Oklahoma City, OK), 2013 – 2015
- Kansas Capital Area Red Cross (Topeka, KS), 2013 – 2015
Board Member
- My Sister’s Place, Non-Profit Housing Shelter for Domestic Abuse Victims (Washington, D.C.), 2010 – 2012
Board Member; Secretary (2011 – 2012)
- Saint Paul Festival & Heritage Foundation, Saint Paul Winter Carnival (St. Paul, MN), 1998 – 2000
Board Member; Membership Committee Chair (1999 – 2000); Compensation and Performance Review Committee Chair (1998 – 1999); Marketing Committee (1998).
- Gridwise Alliance (Washington, D.C.), 2009 – 2014
Board of Directors (2010 – 2014); Governance Committee (2010 – 2013); Co-Chair State Legislative and Policy Working Group (2009 – 2011).

E. Other Current Professional Commitments

- N/A