

CHRISTOPHER R. VILLARREAL

9492 Olympia Drive, Eden Prairie, MN 55347
 email: chris@pluggedinstrategies.com

(415) 680-4224

EMPLOYMENT

NON-RESIDENT (ENERGY AND ENVIRONMENTAL POLICY) ASSOCIATE FELLOW SEPTEMBER 2019-CURRENT
R Street Institute *Washington, D.C.*

- Provide regulatory and policy support on topics including performance-based ratemaking, development of rules for integrated resource planning, distributed energy resources, and market-oriented solutions for customer choice and development of clean energy resources.
- Develop written materials summarizing regulatory actions on topics related to performance-based ratemaking, customer choice, distribution system planning, distributed energy resources, and other topics as needed.
- Participate in state and federal regulatory proceedings and working groups on development of performance-based ratemaking mechanisms, net energy metering, and integrated resource planning, including the review of utility proposals, participating in working groups to review and recommend metrics for performance-based ratemaking frameworks, and providing comments to state regulatory commissions on performance-based ratemaking metrics and frameworks.

PRESIDENT APRIL 2017-CURRENT
Plugged In Strategies *Eden Prairie, MN*

- Provide regulatory and policy analysis and consulting services related to evolution of electricity grid, distribution system planning, emerging customer and grid-connected technologies, and regulatory strategies
- Provide facilitation and moderation services for groups, workshops, and working groups
- Provide research and analysis services regarding utility and regulatory matters and structures
- Provide additional expert analysis on matters affecting electricity and regulatory structures, including topics such as data privacy, data access, rate design, interoperability, advanced technologies, performance-based ratemaking, and convergence of technology, industries, and markets.
- Provide expert testimony and presentations before state utility commissions on topics including distribution system planning, distributed energy resources, data privacy and data access, performance-based ratemaking, and grid modernization.
- Prepare training materials on distributed energy resources, interoperability, and grid modernization for international regulatory and policy decision-makers.

DIRECTOR OF POLICY MAY 2015- APRIL 2017
Minnesota Public Utilities Commission *Saint Paul, MN*

- Maintained high profile inside and outside the state representing the Commission on electricity matters.
- Assisted Commissioners with policy analysis to support decision-making options.
- Provided policy analysis to support development of record in proceedings.
- Provided subject matter expertise on specific topics, including rate design, energy storage, grid modernization, data privacy, data access, interconnection, and security.
- Organized workshops, including preparing agendas, inviting speakers, and moderating public panels.
- Engaged and interact with several national organizations, including National Association of Regulatory Utility Commissioners, Department of Energy, Federal Energy Regulatory Commission, National Institute of Standards and Technologies, North American Energy Standards Board, and Smart Grid Consumer Collaborative.
- Regularly spoke and participated in panels, conference, webinars, and other international, national, and state conferences on behalf of the Minnesota Public Utilities Commission.

- Engaged and worked with several state-level projects, including e21 Initiative and 2025 Energy Action Plan
- Participated in actions related to Midcontinent Independent System Operator product development, including demand response and energy storage.
- Chaired NARUC Staff Subcommittee on Rate Design, and managed development of Distributed Energy Resources Rate Design and Compensation manual, which included meeting specific deadlines, organize and manage a group of seven staff from around the country to develop, draft, and finalize manual on time.
- Maintained an awareness and understanding of electricity policy developments across the country, including at national and state level; provide an analysis of these developments for Commissioners.

SENIOR REGULATORY ANALYST

MARCH 2006- APRIL 2015

California Public Utilities Commission

San Francisco, CA

Major Accomplishments:

- Staff lead on Commission Smart Grid rulemaking: responsible for coordinating Staff work on rulemaking, working with ALJ and Assigned Commissioner's Office, organizing and facilitating workshops on a number of Smart Grid-related topics, including cybersecurity, privacy, customer data access and other customer issues, and ensuring proceeding met legislatively mandated time-frame.
- Prepared initial Orders Instituting Rulemaking on energy storage, rate design reform, and Smart Grid, and assisted in completion of final Commission decisions on Smart Grid, rate design, customer access to data, and privacy.
- Named as a Top 50 Smart Grid Pioneers for 2013 by Smart Grid Today.
- Managed and facilitated Commission workshops on emerging topics, such as privacy, cybersecurity, energy storage, and customer data access.
- Provided lead and support analysis on many electricity issues affecting customers, market participants, and utilities, including dynamic pricing, demand response, energy efficiency, rate design, electric energy storage, direct access and retail/wholesale integration.
- Responsible for monitoring activities, preparing analyses of policies, and preparing and submitting comments related to specific subject areas before FERC, U.S. Congress, California State Legislature, CEC, DOE, NIST, and Office of Science and Technology Policy.
- Participated in standard making process, and prepared and submitted comments to FERC, NIST, and NAESB.
- Chair of NAESB Energy Services Provider Interface Task Force, and a member of NAESB Executive Committee.
- Lead author and contributor on White Papers related to several emerging topics, such as Pre-Pay, cybersecurity, and microgrids.
- Presented at conferences on updates and summaries of Commission position on Smart Grid issues, such as customer education, privacy, cybersecurity, customer access to usage, rate design and tariffs, and general regulatory policy.

PARALEGAL

NOVEMBER 2005-FEBRUARY 2006

Patton Boggs

Washington, D.C.

- Performed research at FERC, other Federal agencies, Congressional legislative history, and various state agencies.
- Cite-check, proofread, and shepardize pleadings filed at FERC and various U.S. Courts of Appeals.
- Organized and maintained discovery files.

PARALEGAL

JULY 2004- OCTOBER 2005

McCarthy, Sweeney & Harkaway

Washington, D.C.

- Performed research for FERC, other Federal agencies, U.S. Congress, state legislatures and state regulatory agencies.
- Obtained and summarized pleadings filed at FERC and courts for clients and attorneys.
- Performed energy-related research (*e.g.*, monitor Energy news, obtain FERC and U.S. Court cases and opinions) and maintained extensive knowledge of many energy issues (*e.g.*, RTOs, deregulation/competition, and California/Pacific Northwest refund proceedings at FERC and U.S. Courts).
- Prepared testimony and discovery-related materials for hearing before FERC Administrative Law Judge, and provided proofreading, cite-checking, and shepardizing assistance for documents filed at FERC, U.S. Supreme Court, U.S. Court of Appeals and U.S. District Courts.
- Prepared briefs and appendices, and maintained and organized case files for proceedings before FERC and U.S. Court of Appeals.
- Monitored energy-related legislation and hearings before U.S. Congress and state legislatures, as well as energy-related activities at state PUC levels (*e.g.*, electric competition/deregulation activities).

PARALEGAL

MARCH 2003- JUNE 2004

*Duane Morris, LLP**Washington, D.C.*

- Performed research at FERC and other Federal agencies. Monitored FERC meetings and prepared summaries of meeting for attorneys and clients.
- Obtained and summarized pleadings filed at FERC and courts for clients and attorneys.
- Performed energy-related research (*e.g.*, monitor Energy news, obtain FERC and U.S. Court cases and opinions) and maintained knowledge base on many energy issues (*e.g.*, RTOs, deregulation/competition, and California/Pacific Northwest refund proceedings at FERC and U.S. Courts).
- Prepared testimony and discovery-related materials for hearing before FERC Administrative Law Judge, and provided proofreading, cite-checking, and shepardizing assistance for documents filed at FERC, U.S. Supreme Court, U.S. Court of Appeals, and U.S. District Courts.
- Monitored energy-related legislation and hearings before U.S. Congress and state legislatures, as well as energy-related activities at state PUC levels (*e.g.*, electric competition/deregulation activities).

LEGAL ASSISTANT

APRIL 2001-MARCH 2003

*McGuireWoods LLP**Washington, D.C.*

- Performed research at FERC and other Federal agencies. Monitored FERC meetings and prepared summaries of meeting for attorneys and clients.
- Performed energy-related research (*e.g.*, monitor energy news, obtain FERC and U.S. Court cases and opinions) and responsible for monitoring energy issues for attorneys (*e.g.*, RTOs, deregulation/competition, generation interconnection, and California/Pacific Northwest refund proceedings at FERC and U.S. Courts).
- Prepared testimony and discovery-related materials for hearing before FERC Administrative Law Judge, and provided proofreading, cite-checking, and shepardizing assistance for documents filed at FERC, U.S. Supreme Court, U.S. Court of Appeals for D.C. Circuit and 9th Circuit, and U.S. District Court for D.C.
- Monitored energy-related legislation and hearings before U.S. Congress and state legislatures, as well as energy-related activities at state PUC levels (*e.g.*, electric competition/deregulation activities).

ENERGY SPECIALIST

MARCH 1998- APRIL 2001

*Verner, Liipfert, Bernhard, McPherson, & Hand**Washington, D.C.*

- Performed research at FERC, SEC, Library of Congress, U.S. Congress, NRC, Department of Interior, National Archives, EPA, U.S. Supreme Court, U.S. Court of Appeals for D.C. Circuit, U.S. District Court for D.C., and other state agencies.
- Performed and monitored energy and environmental-related research.
- Made filings at FERC, U.S. Court of Appeals for D.C. Circuit, U.S. District Court for D.C., and SEC.

- Provided proofreading assistance, including cite-checking and shepardizing of documents.
- Attended U.S. Congress hearings on Energy issues and summarized for attorneys.
- Organized and maintained Energy Group library and trade press.
- Supervised Energy Group Summer intern.

EDUCATION

BACHELOR OF ARTS IN HISTORY
Baylor University

1993-1997
Waco, Texas

ASSOCIATIONS

- Board of Directors, Minnesota Conservative Energy Forum
- Board of Directors, Minnesota Solar Energy Industries Association
- Associate Member, GridWise Architecture Committee
- Planning Commission, City of Eden Prairie, MN (2017-2020)
- Board of Directors, Emeritus, North American Energy Standard Board
- Executive Committee, Emeritus, Retail Markets Quadrant, North American Energy Standards Board
- Board of Directors, Emeritus, Smart Grid Consumer Collaborative
- Chair, Staff Subcommittee on Rate Design, National Association of Regulatory Utility Commissioners (November 2015-April 2017)
- Co-Chair, Business and Policy Domain Expert Working Group, Smart Grid Interoperability Panel (2014-2016)

PUBLICATIONS

- *Investigating Interoperability for Electric Vehicles: A Case Study from Connecticut*, National Association of Regulatory Utility Commissioners, on behalf of the Connecticut Public Utilities Regulatory Authority (October 2021)
[http://www.dpuc.state.ct.us/2nddockcurr.nsf/4b3c728dd1c0d642852586db0069aa70/4bbe04558990992285258764005afb5e/\\$FILE/NARUC%20CT%20Case%20Study%20on%20EV%20Interoperability-submission.pdf](http://www.dpuc.state.ct.us/2nddockcurr.nsf/4b3c728dd1c0d642852586db0069aa70/4bbe04558990992285258764005afb5e/$FILE/NARUC%20CT%20Case%20Study%20on%20EV%20Interoperability-submission.pdf)
- *AMI in Review: A Lens into an Unfolding Future*, T&D World (March 5, 2021)
<https://www.tdworld.com/smart-utility/metering/article/21157103/ami-in-review-a-lens-into-an-unfolding-future>
- *Enabling and Benefiting from Distributed Energy Resources in Texas*, R Street Policy Study No. 211, R Street Institute (November 2020)
<https://www.rstreet.org/wp-content/uploads/2020/11/Final-No-211-DERs.pdf>
- *Net Metering and Distributed Energy Resources Policy: R Street Shorts No. 93*, R Street Institute (August 2020)
<https://www.rstreet.org/wp-content/uploads/2020/08/Short-No.-93-Net-Metering.pdf>

- *AMI in Review: Informing the Conversation*, U.S. Department of Energy, Advanced Grid Research (July 2020)
https://smartgrid.gov/files/documents/AMI_Report_7_8_20_final_compressed.pdf
- *Smart Grid Interoperability: Prompts for State Regulators to Engage Utilities*, National Association of Regulatory Utility Commissioners (April 2020).
<https://pubs.naruc.org/pub/28950636-155D-0A36-313C-73CCEA2D32C1>
- *Framework and Roadmap for Smart Grid Interoperability Standards Regional Roundtables Summary Report*, NISTIR 8284, National Institute of Standards and Technology, *et al.* (February 2020).
<https://doi.org/10.6028/NIST.IR.8284>
- *Distributed Energy Resources Rate Design and Compensation Manual*, National Association of Regulatory Utility Commissioners, Staff Subcommittee on Rate Design (November 10, 2016).
<http://pubs.naruc.org/pub/19FDF48B-AA57-5160-DBA1-BE2E9C2F7EA0>
- *Microgrids: A Regulatory Perspective*, California Public Utilities Commission, Policy and Planning Division (April 14, 2014).
<http://www.cpuc.ca.gov/NR/rdonlyres/01ECA296-5E7F-4C23-8570-1EFF2DC0F278/0/PPDMicrogridPaper414.pdf>
- *Utility Investment Valuation Strategies: A Case for Adopting Real Options Valuation*, California Public Utilities Commission, Policy and Planning Division (October 3, 2013).
<http://www.cpuc.ca.gov/NR/rdonlyres/D5C63A2B-40F2-468D-964A-F265B90346B1/0/Final2RRM.pdf>
- *Cybersecurity and the Evolving Role of State Regulation: How it Impacts the California Public Utilities Commission*, California Public Utilities Commission, Grid Planning and Reliability/Policy and Planning Division Policy Paper (September 19, 2012).
<http://www.cpuc.ca.gov/NR/rdonlyres/D77BA276-E88A-4C82-AFD2-FC3D3C76A9FC/0/TheEvolvingRoleofStateRegulationinCybersecurity9252012FINAL.pdf>
- *A Review of Pre-Pay Programs for Electricity Service*, California Public Utilities Commission, Policy and Planning Division Policy Paper (July 26, 2012).
<http://www.cpuc.ca.gov/NR/rdonlyres/152ED1D4-DD85-4D6F-984B-B84847933A18/0/Prepaypolicypaper0712.pdf>
- *Electric Energy Storage: An Assessment of Potential Barriers and Opportunities*, California Public Utilities Commission, Policy and Planning Division (July 9, 2010).
<http://www.cpuc.ca.gov/NR/rdonlyres/71859AF5-2D26-4262-BF52-62DE85C0E942/0/CPUCStorageWhitePaper7910.pdf>

TESTIMONY

- *In the matter of the application of Consumers Energy Company for authority to increase its rates for the generation and distribution*, Direct Testimony of Christopher Villarreal on Behalf of Michigan Environmental Council, Natural Resources Defense Council, and Sierra Club, before the Michigan Public Service Commission, Case No. U-20134 (September 10, 2018)
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000002ftVkAAI>
- *In the matter of the application of DTE ELECTRIC COMPANY for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority*, Direct Testimony of Christopher Villarreal on Behalf of Michigan Environmental Council, Natural Resources Defense Council, and Sierra Club, before the Michigan Public Service Commission, Case No. U-20162 (November 7, 2018)
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000329ckAAA>
- *Application of Duke Energy Carolinas, LLC for Adjustments in Electric Rate Schedules and Tariffs and Request for an Accounting Order*, Direct Testimony of Christopher Villarreal on Behalf of South Carolina Solar Business Alliance, before the Public Service Commission of South Carolina, Docket No. 2018-319-E (February 26, 2019)
<https://dms.psc.sc.gov/Attachments/Matter/499c7e9c-65b6-4469-afbd-9d7614711b84>
- *Application of Duke Energy Progress, LLC for Adjustments in Electric Rate Schedules and Tariffs and Request for an Accounting Order*, Direct Testimony of Christopher Villarreal on Behalf of South Carolina Solar Business Alliance, before the Public Service Commission of South Carolina, Docket No. 2018-318-E (March 1, 2019)
<https://dms.psc.sc.gov/Attachments/Matter/ce0917d7-35f2-4bb0-8715-5c2345a5026c>
- *In the matter of the Application of Indiana Michigan Power Company for authority to increase its rates for the sale of electric energy and for approval of depreciation rates and other related matters*, Direct Testimony of Christopher Villarreal on Behalf of the Environmental Law and Policy Center, the Ecology Center, the Solar Energy Industries Association, and Vote Solar, before the Michigan Public Service Commission, Case No. U-20359 (October 17, 2019)
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t00000077IYRAA2>
- *In the matter of the Application of DTE Electric Company for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority*, Direct Testimony of Christopher Villarreal on Behalf of the Environmental Law & Policy Center and the Natural Resources Defense Council, before the Michigan Public Service Commission, Case No. U-20561 (November 6, 2019)
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000007X6ZiAAK>
- *In the matter of the Application of Consumers Energy Company for authority to increase its rates for the generation and distribution of electricity and for other relief*, Direct Testimony of Christopher Villarreal on Behalf of Michigan Environmental Council, Natural Resources Defense Council, Sierra Club, and Citizens Utility Board of Michigan, before the Michigan Public Service Commission, Case No. U-20697 (June 24, 2020).
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000CIwhzAAD>

- *In the matter of the Application of Consumers Energy Company for authority to increase its rates for the generation and distribution of electricity and for other relief*, Direct Testimony of Christopher R. Villarreal on Behalf of Michigan Environmental Council, Natural Resources Defense Council, Sierra Club, and Citizens Utility Board of Michigan, before the Michigan Public Service Commission, Case No. U-20963 (June 22, 2021).
<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000Pvx0LAAR>
- *Electric Distribution Utilities Electric Vehicle Time of Use Rates*, Direct Testimony of Christopher R. Villarreal on Behalf of Clean Energy New Hampshire and Conservation Law Foundation, before the New Hampshire Public Utilities Commission, Docket No. DE 20-170 (October 13, 2021).
https://www.puc.nh.gov/Regulatory/Docketbk/2020/20-170/TESTIMONY/21-170_2021-10-13_CENH_CLF_DIR-TESTIMONY-VILLARREAL.PDF
- *Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for approval of their joint Economic Recovery Transportation Electrification Plan*, Testimony of Christopher R. Villarreal on Behalf of Bureau of Consumer Protection, before the Public Utilities Commission of Nevada, Docket No. 21-09004 (October 25, 2021).
http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2020_THRU_PRESENT/2021-9/13470.pdf