

## EDUCATION

BS Electrical Engineering, Georgia Institute of Technology, 1982

## PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronic Engineers Power Engineering Society – Senior Member

National Electric Safety Code Subcommittee 5 – Alternate Member

Past Member - Insulated Conductor Committee

## PROFESSIONAL REGISTRATIONS

Registered Professional Engineer in Alabama, Arkansas, Georgia, Florida, Idaho, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, and Wisconsin.

## AREAS OF EXPERTISE

Overhead and Underground Distribution Design, Distribution System Planning, Power System Modeling and Analysis, Training

## DESIGN

Mr. Mara has over 30 years of experience as a distribution engineer. He worked six years at Savannah Electric as a Distribution Engineer and ten years with Southern Engineering Company as a Project Manager. At Savannah Electric, Mr. Mara gained invaluable field experience in the operation, maintenance, and design of transmission and distribution systems. While at Southern Engineering, Mr. Mara performed planning studies, general consulting, underground distribution design, territorial assistance, and training services. Presently, Mr. Mara is a Vice President at GDS Associates, Inc. and serves as the Principal Engineer for GDS Associates' engineering services company known as its trade name Hi-Line Engineering.

### ***Overhead Distribution System Design***

Mr. Mara is in responsible charge of the design of distribution lines for many different utilities located in a variety of different terrains and loading conditions. Mr. Mara is in responsible charge of the design of over 100 miles of distribution line conversions, upgrades, and line reinsulation each year. Many of these projects include acquisition of right-of-way, obtaining easements, and obtaining permits from various local, state and federal agencies. In addition, Mr. Mara performs inspections at various stages of completion of line construction projects to verify compliance of construction and materials with design specifications and applicable codes and standards.

### ***Underground Distribution System Design***

Mr. Mara has developed underground specifications for utilities and was an active participant on the Insulated Conductor Committee for IEEE. He has designed underground service to subdivisions, malls, commercial, and industrial areas in various terrains. These designs include concrete-encased ductlines, direct-burial, bridge attachments, long-bores, submarine, and tunneling projects. He has developed overcurrent and overvoltage protection schemes for underground systems for a variety of clients with different operating parameters.

## **PLANNING**

Mr. Mara has prepared numerous planning studies for electric cooperatives and municipal systems in various parts of the country. The following is a representative list of specific projects:

- ③ Little River Electric Cooperative, SC
  - Long Range Plan
  - Four Construction Work Plans
- ③ Maxwell AFB, AL - Long Range Plan
- ③ Fall River Electric, ID – Long Range Plan
- ③ Chugach Electric, AK - Long Range Plan
- ③ Newberry Electric Cooperative, SC - Construction Work Plan, Long Range Plan
- ③ Lackland AFB, TX - Long Range Plan
- ③ Rio Grande ECI, TX - Construction Work Plan, Long Range Plan
- ③ Northern Virginia Electric Cooperative, VA - Construction Work Plan
- ③ BARC Electric Cooperative - Construction Work Plan
- ③ Dixie Electric Cooperative - Construction Work Plan
- ③ Joe Wheeler Electric Cooperative - Construction Work Plan
- ③ Cullman Electric Cooperative - Long Range Plan, Construction Work Plan

## **TRAINING SEMINARS**

Mr. Mara has developed engineering training courses on the general subject of distribution power line design. These seminars have become extremely popular with more than 25 seminars being presented annually and with more than 4,000 people having attended seminars presented by Mr. Mara. A 3-week certification program is offered by Hi-Line Engineering in eleven states. The following is a list of the training material developed and/or presented:

- ③ Application and Use of the National Electric Safety Code
- ③ How to Design Service to Large Underground Subdivisions
- ③ Cost-Effective Methods for Reducing Losses/Engineering Economics
- ③ Underground System Design
- ③ Joint-Use Contracts – Anatomy of Joint-Use Contract
- ③ Overhead Structure Design
- ③ Easement Acquisition
- ③ Transformer Sizing and Voltage Drop

### ***Construction Specifications for Electric Utilities***

Mr. Mara has developed overhead construction specifications including overhead and underground systems for several different utilities. The design included overcurrent protection for padmounted and pole mounted transformers. The following is a representative list of past and present clients:

- ③ Cullman EMC, Alabama
- ③ Blue Ridge EMC, South Carolina
- ③ Buckeye Rural Electric Cooperative, Ohio
- ③ Three Notch EMC, Georgia
- ③ Little River ECI, South Carolina
- ③ Lackland Air Force Base
- ③ Maxwell Air Force Base

## SYSTEM PRIVATIZATION/EVALUATION

- ③ Central Electric Power Cooperative, Columbia, SC
  - 2017 Independent Certification of Transmission Asset Valuation, Silver Bluff to N. Augusta 115kV
  - 2015 Independent Certification of Transmission Asset Valuation, Wadmalaw 115kV
- ③ Choctawhatchee Electric Cooperative, DeFuniak Springs, FL
  - Inventory and valuation of electrical system assets at Eglin AFB prior to 40-year lease to private-sector entity.

## PUBLICATIONS

- ③ Co-author of the NRECA “Simplified Overhead Distribution Staking Manual” including editions 2, 3 and 4.
- ③ Author of “Field Staking Information for Overhead Distribution Lines”
- ③ Author of four chapters of “TVPPA Transmission and Distribution Standards and Specifications”

## TESTIMONIES & DEPOSITIONS

Mr. Mara has testified as an expert at trial or by deposition in the following actions.

- ③ Deposition related to condemnation of property  
Newberry ECI v. Fretwell, 2005  
State of South Carolina
- ③ Testimony in Arbitration regarding territory dispute  
Newberry ECI v. City of Newberry, 2003  
State of South Carolina  
Civil Action No. 2003-CP-36-0277
- ③ Expert Report and Deposition, 2005  
United States of America v. Southern California Edison Company  
Case No CIV F-01-5167 OWW DLB
- ③ Expert Report and Deposition, 2005  
Contesting a transmission condemnation  
Moore v. South Carolina Electric and Gas Company  
United States District Court of South Carolina  
Case No. 1:05-1509-MBS
- ③ Affidavit October 2007  
FERC Docket No. ER04-1421 and ER04-1422  
Intervene in Open Access Transmission Tariff filed by Dominion Virginia Power
- ③ Affidavit February 26, 2008  
FERC Docket No. ER08-573-000 and ER08-574-000  
Service Agreement between Dominion Virginia Power and WM Renewable Energy, LLC

- ③ Direct Filed Testimony date December 15, 2006  
Before the Public Utility Commission of Texas  
SOAH Docket No 473-06-2536  
PUC Docket No. 32766
- ③ Expert Report and Direct Testimony April 2008  
United States Tax Court  
Docket 25132-06  
Entergy Corporation v. Commissioner Internal Revenue
- ③ Direct Testimony September 17, 2009  
Public Service Commission of the District of Columbia  
Formal Case 1076  
Reliability Issues
- ③ Filed Testimony regarding the prudence of hurricane restoration costs on behalf of the City of Houston, TX, 2009  
Cozen O'Connor P.C.  
TX PUC Docket No. 32093 – Hurricane Restoration Costs
- ③ Technical Assistance and Filed Comments regarding line losses and distributive generation interconnection issues, 2011  
Office of the Ohio Consumer's Counsel  
OCC Contract 1107, OBM PO# 938 for Energy Efficiency T & D
- ③ Technical Assistance, Filed Comments, and Recommendations evaluating Pepco's response to Commission Order 15941 concerning worst reliable feeders in the District of Columbia. 2011, 2012 Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Technical Assistance, Filed Comments, and Recommendations on proposed rulemaking by the District of Columbia PSC amending the Electric Quality of Service Standards (EQSS), 2011.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Yearly Technical Review, Filed Comments, and Recommendations evaluating Pepco's Annual Consolidated Report for 2011 through 2017.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Technical Evaluation, Filed Comments, and Recommendations evaluating Pepco's response to a major service outage occurring May 31, 2011. (2011)  
Office of the People's Counsel of the District of Columbia  
Formal Case Nos. 766 and 1062
- ③ Technical Assistance, Filed Comments, and Recommendations evaluating Pepco's response to Commission Order 164261 concerning worst reliable neighborhoods in the District of Columbia, 2011.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Technical Review, Filed Comments, and Recommendations on Pepco's Incident Response Plan (IRP) and Crisis Management Plan (CMP), 2011.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766

- ③ Technical Assistance, Filed Comments, and Recommendations assessing Pepco's Vegetation Management Program and trim cycle in response to Oder 16830, 2012.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Technical Review, Filed Comments, and Recommendations on Pepco's Secondary Splice Pilot Program in response to Order 16426, 2012.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766 and 991
- ③ Technical Review, Filed Comments, and Recommendations on Pepco's Major Storm Outage Plan (MSO), 2012 - active.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 766
- ③ Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2011-2012.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 1087 – Pepco 2011 Rate Case. Hearing transcript date: February 12, 2012.
- ③ Evaluation of and Filed Comments on Pepco's Storm Response, 2012.  
Office of the People's Counsel of the District of Columbia  
Storm Dockets SO-02, 03, and 04-E-2012
- ③ Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2013 - 2014.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 1103 – Pepco 2013 Rate Case. Hearing transcript date: November 6, 2013.
- ③ Evaluation of and Filed Comments on Prudency of 2011 and 2012 Storm Costs, 2013 – 2014.  
State of New Jersey Division of Rate Counsel  
BPU Docket No. AX13030196 and EO13070611
- ③ Technical Assistance and Direct Filed Testimony for DTE Acquisition of Detroit Public Lighting Department, 2013 – 2014.  
Office of the State of Michigan Attorney General  
Docket U-17437
- ③ Evaluation of and Filed Comments on the Siemens Management Audit of Pepco System Reliability and the Liberty Management Audit, 2014  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 1076
- ③ Technical Assistance and Direct Filed Testimony in the Matter of the Application for approval of the Triennial Underground Infrastructure Improvement Projects Plan, 2014 – 2017.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 1116
- ③ Technical Assistance and Direct Filed Testimony in the Matter of the Merger of Exelon Corporation, Pepco Holdings, Inc., Potomac Electric Power Company, Exelon Energy Delivery Company, LLC and New Special Purpose Entity, LLC, 2014 – 2016.  
Office of the People's Counsel of the District of Columbia  
Formal Case No. 1119. Hearing transcript date: April 21, 2015.
- ③ Technical Assistance and Direct Filed Testimony in the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., 2014 – 2016.  
State of Maryland and the Maryland Energy Administration  
Case No. 9361

- ③ Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2015 – 2016.  
State of Oklahoma Office of the Attorney General  
Cause No. PUD 201500273 - OG&E 2016 Rate Case. Hearing transcript date: May 17, 2016.
- ③ Technical Assistance and Filed Comments on Notice of Inquiry, The Commission’s Investigation into Electricity Quality of Service Standards and Reliability Performance, 2016 - active.  
Office of the People’s Counsel of the District of Columbia  
RM36-2016-01-E
- ③ Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2016 - 2017.  
Office of the People’s Counsel of the District of Columbia  
Formal Case No. 1139 – Pepco 2016 Rate Case. Hearing transcript date: March 21, 2017.
- ③ Technical Assistance in the Matter of the Application for approval of the Biennial Underground Infrastructure Improvement Projects Plan, 2017.- active  
Office of the People’s Counsel of the District of Columbia  
Formal Case No. 1145
- ③ Technical Assistance to Inform and advise the OPC Regarding Pepco’s Capital Grid Project, 2017 - active.  
Office of the People’s Counsel of the District of Columbia  
Formal Case No. 1144. Confidential Comments and Confidential Affidavit filed November 29, 2017.
- ③ Expert witness for personal injury case Mecklenburg County, NC  
Tin, Fulton, Walker & Owen, PLLC  
Norton v Duke, Witness testimony December 1, 2017
- ③ Technical assistance and pre-filed Direct Testimony on behalf of the Joint Municipal Intervenors in a rate case before the Indiana Utility Regulatory Commission; 2017 - active.  
Cause No. 44967. Testimony filed November 7, 2017.