Appendix A

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Edward G. (Ted) McGavran III, P.E.

Contact Information
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Date of Birth:	December 3, 1959
Place of Birth:	Charleston, West Virginia
Citizenship:	United States of America
Sex:	Male
Marital Status:	Married (Wife, Melanie McGavran)
Children:	One (Son, Edward McGavran)

Professional History:

April, 1991 to Present:
President & Owner
McGavran Engineering, P.C.

Consulting engineering practice started in 1991 to work with rural power systems in the Southeastern United States. Clients include municipally owned power systems, investor owned utilities, industrial power systems, electrical testing contractors, and other professional firms. Projects and tasks include, but are not limited to the following:

- Engineering and operations management reviews and operational plans for rural electric cooperatives.
- System planning for long and short range plans including distribution and transmission system analysis, design, least cost planning, economic analysis, and alternative plans.
- Studied reliability as a critical component of electric system planning criteria. Rank order projects on an objective criteria based on resources available and long term financial models to determine outcomes.
- Manage and design projects for up to 345 kV transmission lines, substations, and underground and overhead distribution projects. In conjunction with the management of these projects have prepared detailed construction contracts for bidding, evaluate and award bids, oversee the construction process, closeout the contracts, and settle any issues regarding damages to property by the contractor as well as final acceptance certification and testing.

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- Oversee system mapping projects and gather GPS data.
- Write and submit Environmental Assessments for power system capital projects including transmission lines, substations, and distribution lines.

- Prepare Spill Prevention and Countermeasure Control Plans for electric substations and operational headquarters facilities. Also prepare and rehearse Emergency Action Plans in conjunction with SPCC regulations.

- Prepare coordination and sectionalizing studies for rural power systems. Studies include relay coordination analysis for transmission lines, substations, and distribution breakers, and down to the distribution line level. Perform system fault current studies for transmission, distribution, and industrial systems.

- Prepare system load flow studies for electric transmission and distribution systems. Analysis has included contingency planning and power factor impact on system voltage levels and losses.

- Work with FERC re-licensing of Catawba River Watershed by locating, surveying, and certifying distribution line crossings over the watershed. Have brought substandard crossings up to NESC and Corps of Engineers requirements based on survey and engineering analysis of the sag and tension of the electric line crossing as determined in the analysis.

- Design and perform feasibility studies for standby generator projects for industrial clients on rural and municipal electric systems including PURPA certifications.

- Select routes and sites for substation and transmission line projects. Work with right of way acquisition to attain the best routes and sites possible for these projects in an imminent domain environment. Give expert testimony to utility commissions and state courts regarding necessity, route selection and impacts for both plaintiffs and interveners on projects up to 345 kV.

- Provide expert witness testimony and litigation support in Civil cases including electrical contacts with electric power lines, industrial faults leading to damaged facilities and/or loss of product, condition of electrical equipment, joint use and pole attachment issues including but not limited to attachment rates, contract language, illegal attachments and safety issues

- Perform system work order inspections for rural electric systems to certify that work has been done to the standards required by the Rural Utility Service.

- Perform pole attachment and joint use rate analysis, contract negotiation, attachment and NESC violation audits. Set up and manage compliance programs, joint trench projects, as well as run client joint use programs on an outsource basis. Clients include electric coops and municipal electric systems throughout the US. Manage and perform violation clean up and basic OSP remediation for copper, fiber, and power facilities on utility pole lines. Worked with NCEMC to develop state legislation regarding pole attachment, rates, rights, violations, and reporting on electric coops and municipal systems poles. Provide expert testimony to state and federal courts regarding pole attachment practices and rate design.

Outside plant design for fiber systems for utility SCADA and associated "smart grid" projects including but not limited to overhead and underground fiber and copper plant development,

radio communications infrastructure, telephone line leasing, T-1 circuit coordination. Also did comprehensive analysis of Broadband over Power lines for several cooperatives.

Write fiber optic feasibility studies for electric coops that included cost estimates for deployment and basic system network design. Included marketing analysis for enterprise applications, as well as SCADA, metering, and other "smart grid" applications. Include system rate of return and business case analysis.

Oversee design of a complete fiber to the home system completion for RUS telecom borrower.

Oversee and design renewable energy projects utility scale from 1 – 100 MW. Duties include as follows:

Utility interconnection design and negotiation, from 12.47 kV to 345 kV level. Includes all relaying and communications, as well as substation siting and approval. Dealt with complex communications and fiber optic designs for reliable system monitoring, metering and protection. Includes solar and biomass projects throughout the Southeast United States. Includes system one line electrical design and certification as Professional Engineer. Prepare both FERC LGIP and SGIP interconnection applications for major utility projects including PJM RTO projects.

Give expert testimony on support for conditional use permits for major solar sites 5 MW and above to towns and counties.

Prepare system feasibility and impact studies for utility grade solar projects 5 MW and above for both utilities and solar providers. Includes voltage swing and fault current impacts, system and conductor loading, and system protection design as well as cost estimation for upgrades required for service.

Prepare decommissioning reports for utility grade solar projects as required for conditional use approvals and certify plans as Professional Engineer of record.

Oversee design of both AC and DC components for entire utility grade solar projects 5 MW – 100 MW and above and for utility grade wind projects over 100 MW with 345 kV transmission line design and routing.

Write and certify commissioning reports for tax credit and investors for biomass projects in Eastern NC.

Write and certify Engineer's report attesting to percent complete to qualify for North Carolina state tax credit in 2015 for solar sites throughout North Carolina. Included on the ground system inspection certification as well.

Give expert testimony to Pennsylvania Public Service Commission regarding actual system impact of solar site on PPL distribution lines. Was able to get cost reduction of system impacts reduced from $3,200,000 to $32,000 for the PPL customer.

Prepare engineering analysis for purchase of smaller scale run of the river hydro projects for both electric coops and private investors.

Prepare Emergency Action plans for smaller scale run of the river hydro projects both new and existing up to 20 MW.

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Prepare system designs for system protection and interconnection for hydro projects as above up to 20 MW.

2005 to 2009:
Board Member and Partner
Facility Planning and Siting, LLC
421 Penman Street, Suite 100
Charlotte, NC 28203
Phone: 704.926.3781
Fax: 704.926.3799

Board member and partner interest in Landscape Architecture firm, which had been a business unit of Framatome AMP and Duke Engineering Services. Company performs detailed siting analysis for major electric transmission lines, substations, generation stations including fossil and nuclear plants, site design for substations, litigation support for utility right of way acquisition including conditional use permits, environmental permitting services, NPDES permits, as well as the same services for private commercial projects.

- Company was established as an independent business in February, 2006.
- Clients include Duke Energy, Central Electric Power Coo along with numerous electric cooperatives in the Carolinas. Major Generation projects included the Duke W.S. Lee Nuclear Plant and the Cliffside Coal fired power plant.

June 1984 to April 1991:
Electrical Engineer
Electrical Consulting Engineers, Inc.
2407 North Tryon Street
Charlotte, North Carolina 28206
Phone: 704.372.6673
Fax: 704.334.2607
Email: jkuhn@e-c-e.net
Web: www.e-c-e.net

- Performed design calculations, spot structures prepare bid documents and manage 115 KV and 69 KV Transmission Line Projects.
- Prepared two year work plans and system planning reports for rural Electric Cooperatives in North Carolina and Virginia.
- Performed sectionalizing and coordination studies for Cooperatives in North Carolina.
- Assisted with field relay tests and substation start-ups.
- Performed design, bid and closeout for 115, 44 & 69 - 12.5 kV substation projects.
- Prepared borrower's environmental reports and
- Performed work order inspections.

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May 1982 to December 1983:
Power Supply Technician
North Carolina Electric Membership Corporation
3400 Sumner Blvd.
Raleigh, NC 27616
Phone: 919.872.0800 or 800.662.8835
Fax: 919.645.3410
E-mail: info@ncemcs.com
Web: www.ncemcs.com

Worked as a power supply technician while I was an engineering student at NC State University and was heavily involved in the following projects:

- Analyzed RTU deployment for statewide load management and SCADA system. Used SAS statistical analysis to deploy RTUs throughout the state of North Carolina to minimize total deployment costs. Also worked on deployment of statewide communications system for load management and SCADA system that included am radio, microwave communications, leased phone and T-1 circuits, and dedicated fiber optic mediums.
- Worked with staff to analyze NCEMC financial models for the Catawba Nuclear plant purchase from Duke Energy.
- Developed model to analyze lease-purchase decisions for leased delivery points for coops with leased deliveries on the Duke Energy system.
- Worked to develop statewide transmission system asset base and map for all North Carolina Electric Cooperatives.

Educational Background:

1974 – 1978	Northwest Cabarrus High School, Concord, North Carolina Graduated – 1978, College preparatory study track
1978 – 1984	North Carolina State University, Raleigh, North Carolina Graduated – 1984 Bachelor of Science in Electrical Engineering

Professional Qualifications and Affiliations:

Registered Professional Engineer:
North Carolina PE#15443
South Carolina PE#12784

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References:

Provided Upon Request

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