Exhibit No.: 14
Issues: Fuel Adjustment Base Factor and Fuel and Purchased Power Costs
Witness: Todd W. Tarter
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company
Case No.: ER-2019-0374
Date Testimony Prepared: August 2019

**Before the Public Service Commission of the State of Missouri**

# Direct Testimony

**of**

**Todd W. Tarter**

**on behalf of**

**The Empire District Electric Company a Liberty Utilities Company**

**August 2019**

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DIRECT TESTIMONY OF
TODD W. TARTER
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
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THE EMPIRE DISTRICT ELECTRIC COMPANY
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## I. INTRODUCTION

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. Todd W. Tarter. My business address is 602 S. Joplin Avenue, Joplin, Missouri.

**Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

A. I am employed by Liberty Utilities Service Corp. as Manager of Market Settlements and Systems for Liberty Utilities Central Region which includes The Empire District Electric Company, a Liberty Utilities Company ("Liberty-Empire" or "Company").

**Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.**

A. I graduated from Pittsburg State University in 1986, with a Bachelor of Science Degree in Computer Science. After graduation, I received a mathematics education certification. I began my employment with Liberty-Empire in May 1989. During my tenure with Liberty-Empire, I have worked in the Corporate Planning, Strategic Planning, Information Technology ("IT"), Planning and Regulatory and Electrical Procurement departments. My primary responsibilities during the early parts of my career included work with the Company's construction budget, load forecasts, sales and revenue budgets, financial forecasts, fuel and purchased power projections, and IT projects among others. In 2004, I was promoted to Manager of Strategic Planning where I primarily worked with fuel and purchased power projections, energy efficiency

and integrated resource planning ("IRP"). In October 2016, I assumed my current position where I am primarily responsible for market settlements; the computer systems used by the Electrical Procurement department; load forecasting; load research; transmission congestion hedging; and fuel and purchased power projections.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION OR ANY OTHER REGULATORY AGENCY?**

A. Yes. I have testified on behalf of Liberty-Empire before the Missouri Public Service Commission ("Commission"), the Kansas Corporation Commission, the Oklahoma Corporation Commission, and the Arkansas Public Service Commission. The case references are attached to this testimony as Schedule TWT-1.

**Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?**

A. The primary purpose of this testimony is to discuss the fuel adjustment clause ("FAC") base factor proposal for this case and discuss how it was developed. I will also propose base rate cost levels for natural gas firm transportation and the Plum Point Purchased Power Agreement ("PPA") demand charge—two fuel and purchased power ("F&PP") related costs that do not run through the Company's current FAC.

**Q. ARE YOU SPONSORING ANY SCHEDULES WITH YOUR TESTIMONY?**

A. Yes. This testimony contains the following schedules:

- Schedule TWT-1, Case References
- Schedule TWT-2, Summary of Fuel and Purchased Power for the FAC Base Factor Model Run
- Schedule TWT-3, Summary of FAC Base Factor Calculation (with a list of FAC base factor components)

## II. F&PP EXPENSE FOR BASE RATES AND THE FAC BASE FACTOR

**Q. WHAT IS THE COMPANY PROPOSING FOR FUEL RECOVERY IN THIS CASE?**

A. Liberty-Empire is recommending the continuation of a FAC, to include the current 95%/5% sharing mechanism. Liberty-Empire is also recommending a new FAC base factor developed with a computer production cost model run using current fuel, purchased power, market revenue, transmission costs, and all the other cost components of the proposed FAC base which will be further discussed in this testimony.

**Q. HAS THE COMPANY PREPARED THE MINIMUM FILING REQUIREMENTS ("MFR") FOR AN FAC CONTINUATION REQUEST?**

A. Yes. Please see the direct testimony of Liberty-Empire witness Sheri Richard for a listing of these MFRs and where each item may be found.

**Q. ARE THERE OTHER COMPANY WITNESSES THAT ADDRESS FAC ISSUES?**

A. Yes. For additional information on the FAC components, please see the direct testimony of Liberty-Empire witness Aaron J. Doll. He discusses Southwest Power Pool ("SPP") net transmission charges, the Off-System Sales Revenue ("OSSR") definition, and SPP transmission hedging instruments known as auction revenue rights and transmission congestion rights ("ARR/TCR"). The FAC proposals he makes for these pertinent cost/revenue components were incorporated into the proposed FAC base factor for this case.

**Q. BRIEFLY DESCRIBE THE PURPOSE OF AN FAC BASE FACTOR.**

A. According to the Company's current FAC Rider Tariff, the FAC base factor is the base energy cost divided by net generation in kilowatt-hours ("kWh") as determined by the Commission in the last general rate case. The base energy cost is the F&PP costs net of fuel-related revenues determined by the Commission to be included in the FAC that are also included in the revenue requirement used to set base rates in a general rate case. As Liberty-Empire's FAC is currently designed, the FAC base factor has not changed since the last general rate case. However, as prescribed by tariff, the actual prudently incurred FAC eligible costs are compared to the FAC base energy costs on a periodic basis. As a simple illustration: if prudently incurred FAC eligible costs are higher than the base, then the Company is allowed to collect the additional amount from Missouri retail customers (less any sharing mechanism) via the FAC rider. Likewise, if the prudently incurred FAC eligible costs are lower than the base, the Company would return the additional amount to Missouri retail customers (less any sharing mechanism) through the FAC rider. The design of an FAC can vary and the details are provided in the FAC Rider Tariff.

**Q. WHAT IS LIBERTY-EMPIRE PROPOSING AS AN UPDATED FAC BASE FACTOR FOR THIS CASE?**

A. Liberty-Empire has analyzed the net F&PP cost level and other eligible FAC costs and revenues for base rates in this case, with the help of a computer production cost model described later in my testimony. Based on this normalized approach, Liberty-Empire is proposing to update the FAC base factor to $0.02488 per kWh. The total company base energy cost proposal is $136,016,133.

**Q. HOW DOES THE PROPOSED FAC BASE FACTOR COMPARE TO THE COMPANY'S EXISTING FAC BASE FACTOR?**

A. The existing FAC base factor, established in Case No. ER-2016-0023, is $0.02415 per kWh. The Company's proposal for this case is an increase of $0.00073 per kWh or about a 3% increase. A summary of the model run to help rebase the FAC is attached as Schedule TWT-2.

**Q. PLEASE PROVIDE A DESCRIPTION OF ANY FAC BASE FACTOR CHANGES THAT ARE BEING PROPOSED IN THIS CASE.**

A. Liberty-Empire's existing Missouri retail FAC base factor took effect on September 14, 2016. Aside from updating the costs, prices and revenues to current levels, there are two primary structural changes to the FAC base factor as proposed by the Company for this case as compared to Liberty-Empire's existing FAC. First, the Company is proposing to include the net ARR/TCR offset in the FAC. Secondly, the Company is proposing to modify the level of transmission expense eligible for the FAC for this case. As previously mentioned, please refer to the direct testimony of Aaron J. Doll for more information on these two items, including the reasons behind each of these proposals. Both of these proposals have been incorporated into the FAC base factor calculation supported in this testimony. Additionally, Mr. Doll presents another FAC proposal in his direct testimony regarding a revision to the OSSR definition in the FAC tariff, but this proposed change does not impact the FAC base factor proposal described herein.

**Q. PLEASE SUMMARIZE THE FAC COST/REVENUE COMPONENTS CONTAINED IN THE PROPOSED FAC BASE FACTOR CALCULATION FOR THIS CASE.**

A. The cost and revenue components of the proposed FAC base factor calculation are summarized in Schedule TWT-3 attached to this testimony. Net F&PP (without

purchased demand or natural gas firm transportation charges) is the sum of fuel and purchased power energy netted with market revenues. Fuel is comprised of a generating unit's fuel to operate including start fuel; natural gas commodity charges; natural gas losses at the cost of natural gas; and other fuel related costs such as undistributed and other and unit train costs. Purchased power energy costs are comprised of the energy costs from Liberty-Empire's PPAs (Plum Point PPA, Elk River Wind PPA and the Meridian Way Wind PPA), plus Plum Point PPA operation and maintenance ("O&M") costs. The market revenues are the revenues received from selling energy into the Southwest Power Pool Integrated Marketplace ("SPP IM" or "market"). Native load cost, or the cost of energy to serve Liberty-Empire's customers, is the cost of energy purchased from the SPP IM plus ancillary and other charges, offset by net ARR/TCR revenue. Other FAC offsets include net renewable energy credits ("RECs") and the removal of fuel related administration and labor. Other FAC eligible costs include net emission allowances; the consumables used by the generating plants' environmental equipment (e.g., ammonia, limestone, powder activated carbon); and FAC eligible transmission charges.

**Q. PLEASE BRIEFLY DESCRIBE THE MODELED FUEL AND PURCHASED POWER EXPENSE PROCESS THAT LIBERTY-EMPIRE DEVELOPED FOR THIS CASE.**

A. Liberty-Empire considered all eligible FAC cost components and updated all annualized and normalized model assumptions from its last Missouri general rate case (Case No. ER-2016-0023) on a total company basis. Liberty-Empire utilized its production cost model to simulate the SPP IM approach to calculate a net F&PP cost level. That is, within the model, Liberty-Empire resources were dispatched against price curves with

their dispatched generation sold into the SPP market with these resources receiving revenue based on the market approach. Within the model, the cost of Liberty-Empire's native load was supplied from the SPP market and not from the cost of Liberty-Empire's generating resources. Multiple sets of hourly market prices were utilized, and the market prices were correlated to the natural gas price within the model. This level of F&PP expense was developed by running the hourly production cost computer model using normalized sales levels, normalized outage data, and projected fuel and purchased power prices. Other F&PP cost/revenue components that are eligible for the FAC were normalized and added outside the model. Please refer to Schedule TWT-2 for a Summary of F&PP report for the FAC base factor model run.

**Q. WHAT PRODUCTION COST MODEL DID LIBERTY-EMPIRE USE FOR ITS REVIEW OF THE ONGOING LEVEL OF F&PP EXPENSES FOR THIS CASE?**

A. This level of F&PP expense was developed by running the hourly production cost computer model known as EnCompass. EnCompass is a planning tool developed by Anchor Power Solutions. Liberty-Empire has used EnCompass for F&PP budgeting and other special studies during the past two budget cycles. According to the model developer, EnCompass optimizes individual utilities or portfolios of assets using full operational details of power plants and complex contracts along with forecasted power prices. By utilizing Mixed Integer Programming, the software determines the best combination of resources to commit and the appropriate dispatch levels for each interval of the operating day. In addition to minimum uptime and downtime requirements, EnCompass can also cap the number of starts and shutdowns, and recognize costs and fuel requirements for hot, warm, and cold starts and shutdowns.

Heat rates and dispatch costs are set for the minimum (no-load) operating level, as well as any number of blocks up to maximum capacity. Any number of fuels may be defined for a resource, and EnCompass will utilize the least-cost fuel, subject to minimum and maximum limits.

**Q. HOW WERE THE NATURAL GAS PRICE FORECAST AND THE MULTIPLE SETS OF NODAL MARKET PRICE FORECASTS OBTAINED?**

A. The natural gas prices and the associated sets of nodal market prices used in the FAC base factor modeling were provided by Horizons Energy, a consulting firm that was contracted by the Company to provide input data for the EnCompass model.

**Q. WHAT WAS THE ANNUAL WEIGHTED AVERAGE PRICE OF NATURAL GAS USED IN THE FAC BASE FACTOR MODELING?**

A. The weighted average price of natural gas yielded from the FAC base factor modeling was $2.39/MMBtu.

**Q. WAS THE NET COST OF NATURAL GAS HEDGING INCLUDED IN THE FAC BASE FACTOR CALCULATION?**

A. No. Natural gas hedging was not considered in the FAC base factor modeling for this case.

**Q. WHAT GENERATION MIX WAS USED IN THE BASE FACTOR MODELING?**

A. The base factor modeling for the Company's direct filing is based on Liberty-Empire's existing resources at the time of this filing, which were also the same generating resources operating during the test year. These resources can be seen in Schedule TWT-2 (the Summary of Fuel and Purchased Power report for the FAC base factor model run).

**Q. ARE THERE ANY OTHER MODELING CONSIDERATIONS THAT SHOULD BE NOTED?**

A. Yes. There are a few modeling items worth mentioning since they may be new issues or changes from past cases. First, the Asbury coal-fired unit was modeled with a blend of two coals (95% Powder River Basin ("PRB") coal and 5% of a blend coal on a heat content basis) as well as using fuel oil as a start fuel. In addition, this unit now has a PRB coal freight contract that must be added in order to capture all of its fuel costs. Secondly, Energy Center Units 1 and 2 can operate on natural gas or fuel oil. They were modeled to operate on fuel oil to correspond with current operations. Due to recent natural gas supply constraints on the Southern Star Pipeline, Energy Center Units 1 and 2 are typically offered into the SPP IM based on their use of fuel oil. Finally, in the native load cost category (see Schedule TWT-3), an Ancillary and Other cost category has been identified. This represents market charges and revenues not settled at load or a generator.

## III. ADDITIONAL F&PP COSTS

**Q. ARE YOU SPONSORING OTHER F&PP RELATED COSTS THAT DO NOT FLOW THROUGH THE FAC?**

A. Yes. The cost of natural gas firm transportation and the Plum Point PPA demand charge are two F&PP costs that do not run through the FAC. Each of these total company costs were annualized and based on contracted pricing for this filing. A cost of $7,471,520 for natural gas firm transportation and $11,485,853 for the Plum Point PPA demand charge have been included to set base rates for this rate case filing.

## IV. CONCLUSION

**Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY.**

A. In this case, Liberty-Empire is requesting the continuation of its FAC. In conjunction with the continuation of the current FAC, Liberty-Empire has estimated a current level of F&PP expenses/revenues in order to rebase the FAC. In its direct filing, Liberty-Empire is proposing an FAC base factor of $0.02488 per kWh, or a total company annual base energy cost proposal of $136,016,133 (please refer to Schedule TWT-3). This is about a 3% increase over the current $0.02415 per kWh level. Two primary changes the Company is proposing are to include the net ARR/TCR offset in the FAC and modify the level of transmission expense eligible for the FAC (as supported in the direct testimony of Liberty-Empire witness Aaron J. Doll). Further, this testimony summarizes the FAC cost components considered in the FAC base factor proposal, describes the computer model and the modeling process, and discusses some key assumptions and modeling considerations. Finally, this testimony proposes updated base rate cost levels for the cost of natural gas firm transportation and the Plum Point PPA demand charge since they are two F&PP costs that do not run through the FAC.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

# Cases with Filed Written Testimony of Todd W. Tarter

**Before the Missouri Public Service Commission**

- Rate Cases

ER-2006-0315, ER-2008-0093, ER-2010-0130, ER-2011-0004, ER-2012-0345, ER-2014-0351,

ER-2016-0023

- Fuel Adjustment Cases

ER-2011-0320, ER-2012-0098, ER-2012-0326, ER-2013-0122, ER-2013-0442, ER-2014-0087, ER-2014-0264, ER-2015-0085, ER-2015-0247, ER-2016-0080

- Fuel Adjustment True-Up

EO-2014-0088, EO-2014-0265, EO-2015-0086, EO-2015-0248, ER-2016-0082

**Before the Kansas Corporation Commission**

- Rate Docket

05-EPDE-980-RTS, 17-EPDE-101-RTS

- Energy Cost Adjustment ACA Docket

KS-12-EPDE-392-ACA, KS-13-EPDE-385-ACA, KS-14-EPDE-270-ACA, KS-15-EPDE-228-ACA,

KS-16-EPDE-260-ACA

**Before the Oklahoma Corporation Commission**

- Rate Cause

PUD 201100082

- Fuel Prudence Review Causes

PUD 201100131, PUD 201200170, PUD 201300131, PUD201400226, PUD201500265, PUD 201600317

- Energy Efficiency Cause

PUD 201300142, PUD 201300203

**Before the Arkansas Public Service Commission**

- Energy Efficiency Docket

07-076-TF

- Net Metering Docket

12-060-R

- Rate Docket

13-11-U, 16-053-U

**SCHEDULE TWT-2**

## LIBERTY UTILITIES - EMPIRE DISTRICT -- SUMMARY OF FUEL AND PURCHASED POWER
## MO Rate Case FAC Base Factor Model Run

**Peak** **1,108**

| | | MO Rate Case | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | GENERATION COST | | | REVENUE | | NET | |
| | | MWH | $ | $/MWH | $ | $/MWH | $ | $/MWH |
| GENERATING UNITS | Asbury | 941,635 | 22,299,382.78 | 23.68 | (23,603,332.84) | (25.07) | (1,303,950.06) | (1.38) |
| | Iatan 1 | 473,768 | 8,057,091.78 | 17.01 | (10,351,658.12) | (21.85) | (2,294,566.34) | (4.84) |
| | Iatan 2 | 681,444 | 9,978,357.91 | 14.64 | (14,253,069.21) | (20.92) | (4,274,711.31) | (6.27) |
| | Plum Point Own | 321,157 | 5,882,215.59 | 18.32 | (7,773,357.74) | (24.20) | (1,891,142.15) | (5.89) |
| | Riverton 12 (CC) | 1,173,948 | 21,263,243.10 | 18.11 | (30,922,552.34) | (26.34) | (9,659,309.23) | (8.23) |
| | Riverton 10-11 | - | - | - | - | - | - | - |
| | EC 1-2 | 20,212 | 8,618,757.00 | 426.42 | (8,723,072.89) | (431.58) | (104,315.89) | (5.16) |
| | EC 3-4 | 98,369 | 2,808,717.21 | 28.55 | (3,774,790.45) | (38.37) | (966,073.24) | (9.82) |
| | State Line 1 | 12,248 | 333,272.87 | 27.21 | (372,902.79) | (30.45) | (39,629.93) | (3.24) |
| | State Line CC | 1,319,699 | 23,871,041.82 | 18.09 | (34,175,190.93) | (25.90) | (10,304,149.12) | (7.81) |
| | Nat. Gas Trans/Stor | - | 7,471,520.22 | | - | | 7,471,520.22 | |
| | TOTAL THERMAL | 5,042,480 | 110,583,600.28 | 21.93 | (133,949,927.32) | (26.56) | (23,366,327.04) | (4.63) |
| | Ozark Beach | 55,895 | - | N.A. | (1,474,161.35) | (26.37) | (1,474,161.35) | (26.37) |
| | TOTAL GENERATION | 5,098,375 | 110,583,600.28 | 21.69 | (135,424,088.67) | (26.56) | (24,840,488.40) | (4.87) |
| PPA | Plum Point PPA | 321,157 | 8,894,677.64 | 27.70 | (7,773,357.74) | (24.20) | 1,121,319.90 | 3.49 |
| | Wind PPA Total * | 850,296 | 31,312,130.63 | 36.82 | (15,898,206.54) | (18.70) | 15,413,924.08 | 18.13 |
| | * (Elk River + Meridian Way) | | | | | | | |
| | Spot/EIS/MISO | - | - | N.A. | - | N.A. | - | |
| | TOTAL PPA | 1,171,454 | 40,206,808.26 | 34.32 | (23,671,564.29) | (20.21) | 16,535,243.98 | 14.12 |
| RESOURCE | Adjustments | - | - | | | | - | |
| | Capacity | - | 11,485,853.00 | | - | | 11,485,853.00 | |
| | TOTAL W DMD | 6,269,828 | 162,276,261.54 | 25.88 | (159,095,652.96) | (25.37) | 3,180,608.58 | 0.51 |
| | TOTAL W/O DMD | 6,269,828 | 150,790,408.54 | 24.05 | (159,095,652.96) | (25.37) | (8,305,244.42) | (1.32) |
| LOAD CHARGES | SPP Chg - EDE Load | 5,465,856 | 146,170,942.38 | 26.74 | | | | |
| | Ancillary/Other | - | 1,500,000.00 | | | | | |
| | ARR/TCR/FTR (SPP/MISO) | - | (14,663,529.74) | | | | | |
| | NATIVE LOAD COST | 5,465,856 | 133,007,412.65 | 24.33 | | | | |
| NET FPP | | | Total FPP Native Ld - Net $ Total w dmd | | | | | |
| | NET FPP W DMD | 5,465,856 | 136,188,021.23 | 24.92 | | | | |
| | NET FPP W/O DMD | 5,465,856 | 124,702,168.23 | 22.81 | | | | |

| MO FAC | Consumables/Env | Net RECs | FPP Eligible FAC | Fuel Admin | Recov Trans Exp | Fixed Pipeline Fee | Loss Charges |
|---|---|---|---|---|---|---|---|
| | 1,782,816.22 | (229,285.72) | 136,016,133 | (276,885.07) | 17,508,839.39 | (7,471,520.22) | - |
| | FAC $/MWh | | | | | | |
| | 24.88 | | | | | | |

**SCHEDULE TWT-3**

# FAC BASE FACTOR CALCULATION

| | | Proposed FAC Base Total Company |
|---|---|---|
| **FUEL** | | |
| Fuel | $ | 97,782,989 |
| Nat Gas Transportation Variable (Nat Gas Commodity Costs) | $ | 227,825 |
| Natural Gas Losses at the Cost of Natural Gas | $ | 922,713 |
| Other Fuel Related (Undistributed & Other and Unit Train) | $ | 4,178,553 |
| **Total Fuel and Related Costs** | $ | 103,112,080 |
| **PURCHASED POWER ENERGY** | | |
| Purchased Power Energy (e.g. Plum Point PPA and Wind PPAs) | $ | 36,279,098 |
| Plum Point O&M Cost-Variable | $ | 3,927,710 |
| **Total Purchased Power** | $ | 40,206,808 |
| **Total F&PP (without purchase demand or Nat Gas Transport)** | $ | 143,318,888 |
| **MARKET REVENUES** | | |
| Resource Sales into the SPP IM (OSS Revenue) | $ | (159,095,653) |
| **NATIVE LOAD COST** | | |
| SPP Charge - Liberty-Empire Load | $ | 146,170,942 |
| Ancillary/Other | $ | 1,500,000 |
| Net ARR/TCR | $ | (14,663,530) |
| **Total Native Load Cost** | $ | 133,007,413 |
| **NET F&PP** | | |
| **Total Net F&PP (without purchase demand or Nat Gas Transport)** | $ | 117,230,648 |
| **OTHER ENERGY RELATED AND ADJUSTMENTS** | | |
| Net Emissions Allowances | $ | - |
| AQCS Consumables (Ammonia, Limestone, PAC) - Variable | $ | 1,782,816 |
| Net Renewable Energy Credits (RECs) | $ | (229,286) |
| Fuel Admin/Labor | $ | (276,885) |
| RTO Transmission | $ | 17,508,839 |
| **Total Other Energy Related and Adjustments** | $ | 18,785,485 |
| **Total F&PP for FAC Base** | **$** | **136,016,133** |
| **Total Kwh** | | 5,465,856,000 |
| **FAC Base Factor $ per kWh** | | **0.02488** |
| **FAC Base Factor $ per MWh** | | **24.88** |

## AFFIDAVIT OF TODD W. TARTER

**STATE OF MISSOURI )**
**) ss**
**COUNTY OF JASPER )**

On the 9 day of August, 2019, before me appeared Todd W. Tarter, to me personally known, who, being by me first duly sworn, states that he is Manager of Market Settlements and Systems of The Empire District Electric Company and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Todd W. Tarter

Subscribed and sworn to before me this 9 day of August, 2019.

ANGELA M. CLOVEN
Notary Public - Notary Seal
State of Missouri
Commissioned for Jasper County
My Commission Expires: November 01, 2019
Commission Number: 15262659

Notary Public

My commission expires: 11/01/19.