#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
	reasonable and used and useful in providing service to customers?	& reasonable, and used and useful in providing service to customers. (Oncor witnesses Austin & Hodges)		
2.0	**Rate of Return**			
2.1	**ROE:** What is the reasonable Return on Equity ("ROE") for Oncor based on the principles described in PURA § 36.052 and 16 TAC § 25.231(c)(1)?	Oncor's authorized ROE should be set at 10.30% consistent with the principles described in PURA § 36.052 and 16 TAC § 25.231(c)(1). (Oncor witness D'Ascendis)		
2.2	**Cost of Debt:** What is the reasonable Cost of Debt for Oncor?	Oncor's cost of debt should be 4.39%. (Oncor witness Fease)		
2.3	**Capital Structure:** What is a reasonable capital structure for Oncor?	Oncor's authorized regulatory capital structure should be set at 55% long-term debt and 45% equity. (Oncor witnesses Lapson and Fease)		
2.4	**Weighted Average Cost of Capital ("WACC"):** Is the WACC proposed by Oncor reasonable?	Yes. Oncor appropriately calculated its WACC based on the proposed capital structure and proposed ROE. (Oncor witness Fease)		
2.5	**Overall Rate of Return:** Is the overall rate of return proposed by Oncor reasonable?	Yes. Oncor's proposed rate of return is reasonable, particularly given Oncor's efficient operations, superior quality of service, excellent management, and leadership position in Texas and the nation in		

#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
		the investment and development of energy efficiency, transmission to facilitate renewable resources, and technology-related upgrades and replacements. (Oncor witnesses Greer, Speed, Hull, Martin, Haentsch, Buck, Hall, Austin, Hodges, & Fease)		
3.0	**Cost of Service**			
3.1	**Operation and Maintenance ("O&M") Expenses:** Were Oncor's test-year O&M expenses and the proposed known and measurable changes to those expenses reasonable and necessary and incurred in furnishing normal electric utility service and in maintaining electric utility plant used by and useful to Oncor in providing such service to the public? [16 TAC § 25.231(b)(1)]	Yes. Oncor's RFP demonstrates that its test-year O&M expenses and the proposed known and measurable changes to those O&M expenses were reasonable and necessary and were incurred in furnishing normal electric utility service and in maintaining electric utility plant used by and useful to Oncor in providing such service to the public. (Oncor witnesses Greer, Speed, Hull, Martin, Haentsch, Buck, Hall, Austin, Hodges, Smith)		
3.1.1	**Labor Expenses:** Were the expenses incurred by Oncor during the test year for wages and benefits adjusted for known and measurable changes reasonable and necessary?	Yes. Oncor's RFP demonstrates that the adjusted test-year level of employees were needed to provide service to the public consistent with the requirements of PURA, the Commission Substantive Rules, and Oncor's tariffs. Oncor's RFP also shows that the expenses that		

#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
		Oncor incurred for wages and benefits were reasonable and necessary. (Oncor witnesses Greer and Guillory)		
3.1.2	**Pension & OPEB Expense:** Is the pension cost proposed by Oncor appropriate under GAAP and recoverable by Oncor? [16 TAC § 25.231(b)(1)(H)] Are the proposed post-retirement benefit costs identified by Oncor for recovery in rates reasonable and necessary? [16 TAC § 25.231(b)(1)(H)]	Yes. Oncor's recoverable pension costs for fiscal year 2022 of $48,016,493 are consistent with Commission rules and should be recovered in Oncor's rates. (Oncor witnesses Fease, Guillory, & Taper) Yes. Oncor's recoverable postretirement benefit costs for fiscal year 2022 of $18,890,628 are appropriate and reasonable and should be recovered in rates. (Oncor witness Taper)		
3.2	**Self-Insurance Reserve:** Is the proposed target amount set for Oncor's self-insurance reserve appropriate? [16 TAC § 25.231(b)(1)(G)]	Yes. Oncor's proposal to set the total amount of the target reserve to $267,500,000 is reasonable and should be approved. (Oncor witnesses Fease, Thenmadathil, & Wilson)		
3.3	**Self-Insurance Accrual:** Is the proposed annual accrual for Oncor's self-insurance reserve reasonable and necessary? [PURA § 36.064; 16 TAC § 25.231(b)(1)(H)]	Yes. Oncor's proposed annual accrual of $122,200,000 for the self-insurance reserve is reasonable and should be approved. (Oncor witnesses Fease, Thenmadathil, & Wilson)		

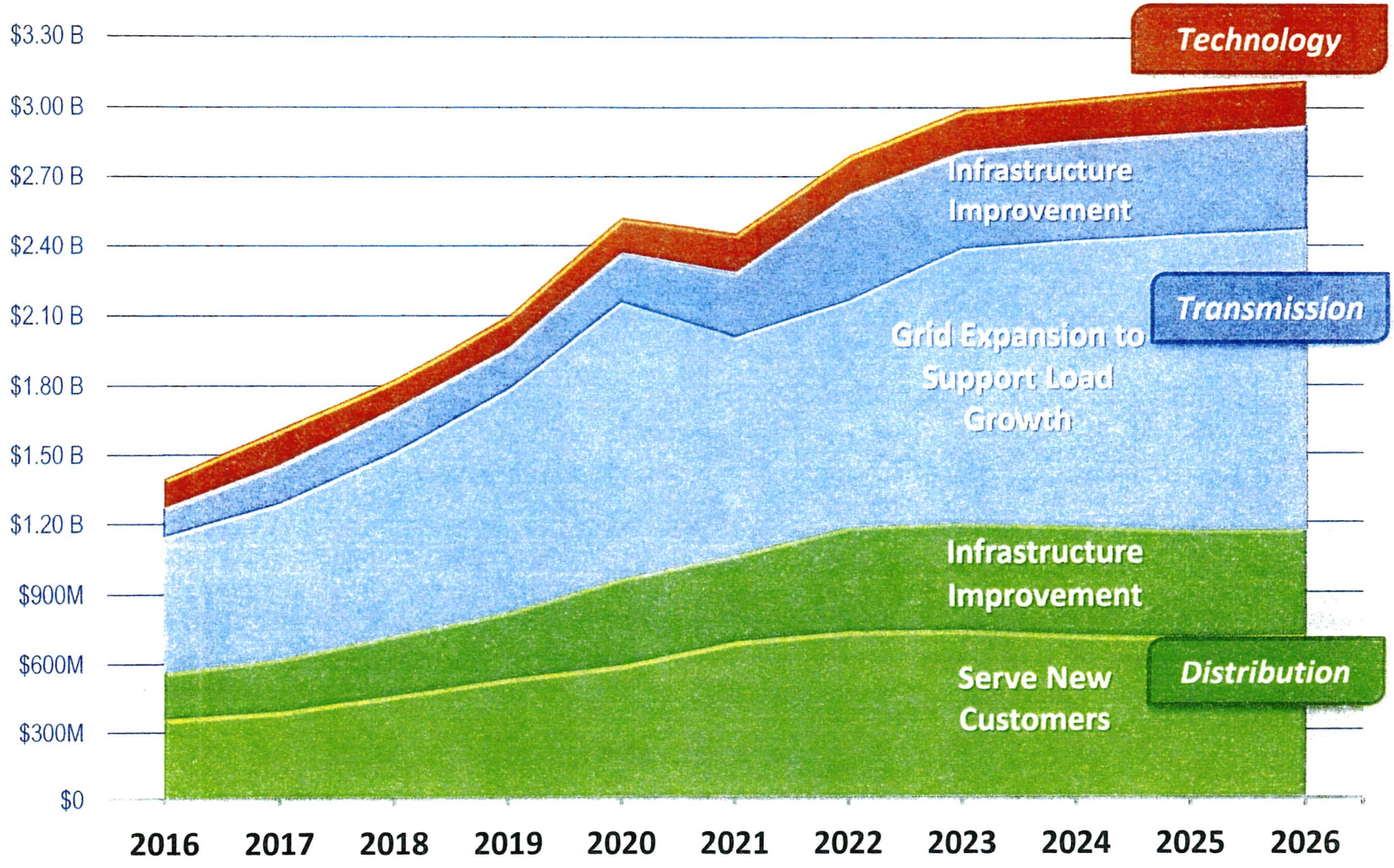
#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
3.4	**Affiliate Transactions:** Do the expenses that Oncor incurred for services provided by an affiliate meet the Affiliate Standard set in PURA § 36.058? Should those expenses be included in cost of service?[PURA § 36.058; 16 TAC § 25.231(b)(1)(A)]	Yes. Oncor's expenses incurred for services provided by its affiliates meet the Affiliate Standard set in PURA § 36.058, and those expenses should be included in Oncor's cost of service. (Oncor witness Grable)		
3.4.1	**Known and Measurable Changes to Affiliate Expenses:** Are the known and measurable changes to those affiliate expenses proposed by Oncor reasonable and necessary? [PURA § 36.058; 16 TAC § 25.231(b)(1)(A)]	Yes. The known and measurable changes to affiliate expenses proposed by Oncor are reasonable and should be incorporated into the cost of service. (Oncor witness Grable)		
3.5	**Depreciation Rates:** Are the proposed depreciation rates reasonable?	Yes. The depreciation rates proposed by Oncor are reasonable. (Oncor witness Watson)		
3.5.1	**Depreciation Expense:** Is the total depreciation expense proposed by Oncor reasonable and necessary? [16 TAC § 25.231(b)(1)(B)]	Yes. The total depreciation expense that Oncor proposes is reasonable and necessary. (Oncor witness Ledbetter)		
3.6	**Federal Income Tax Expense:** Is the federal income tax expense that Oncor seeks to include in its cost of service reasonable and necessary? [16 TAC § 25.231(b)(1)(D)]	Yes. The federal income tax expense that Oncor has included in its proposed cost of service is reasonable and necessary. (Oncor witness Clutter)		

#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
3.7	**State and Local Taxes:**			
3.7.1	**Ad Valorem Taxes**: Is the level of ad valorem taxes that Oncor is proposing to include in its cost of service reasonable and necessary? [16 TAC § 25.231(b)(1)(C)]	Yes. The ad valorem tax expense that Oncor has included in its proposed cost of service is reasonable and necessary. (Oncor witness Clutter)		
3.7.2	**Payroll Taxes:** Is the level of Payroll taxes that Oncor is proposing to include in its cost of service reasonable and necessary? [16 TAC § 25.231(b)(1)(C)]	Yes. The payroll tax expense that Oncor has included in its proposed cost of service is reasonable and necessary. (Oncor witness Clutter)		
3.7.3	**Texas Gross Margin Tax:** Is the level of Texas Gross Margin tax that Oncor is proposing to include in its cost of service reasonable and necessary? [16 TAC § 25.231(b)(1)(C)]	Yes. The Texas gross margin tax expense that Oncor has included in its proposed cost of service is reasonable and necessary. (Oncor witness Clutter)		
3.7.4	**Municipal Franchise Fees:** Is the level of municipal franchise fees that Oncor is proposing to include in its cost of service reasonable and necessary? [16 TAC § 25.231(b)(1)(C)]	Yes. The municipal franchise fee expense that Oncor has included in its proposed cost of service is reasonable and necessary. (Oncor witness Clutter)		
3.8	**Total Cost of Service:** Is Oncor's proposed total cost of service reasonable?	Oncor's total cost of service of $5,824,068,018 is reasonable.		
4.0	**Cost Allocation and Rate Design**			
4.1	**Cost Allocation:** Is Oncor's proposed rate class cost allocation reasonable?	Yes. Oncor's proposed rate class cost allocation is reasonable and should be approved. (Oncor witness Troxle)		

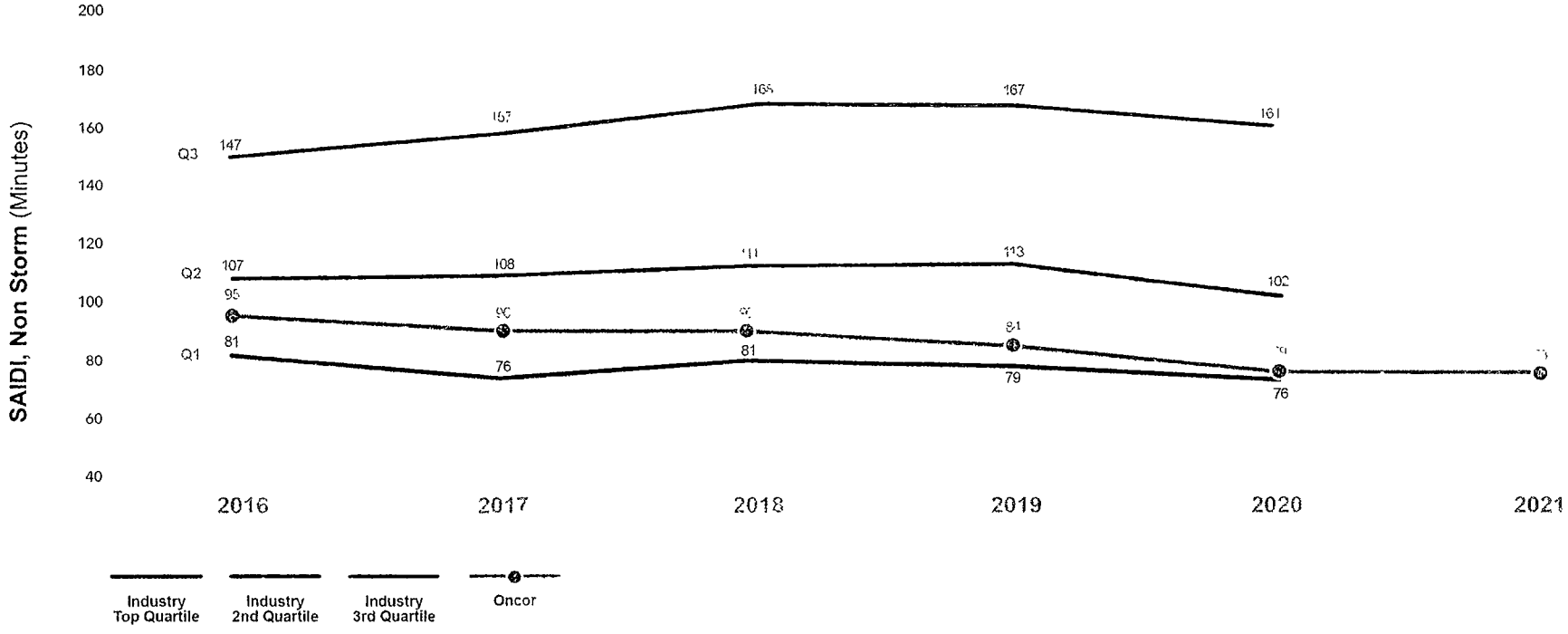
#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
4.2	**Rate Class Cost-of-Service Study:** Does Oncor's rate class cost of service study use Commission approved cost allocation methodologies to assign costs to rate classes?	Yes. Oncor's rate class cost-of-service study uses Commission-approved cost allocation methodologies to assign costs to rate classes. (Oncor witness Troxle)		
4.3	**Test-Year Adjustments:**			
4.3.1	**Weather Normalization Adjustment:** Is Oncor's proposed weather normalization adjustment to test year kWh sales reasonable?	Yes. Oncor's proposed weather normalization adjustment uses the same methodology previously approved by the Commission in Docket No. 35717. That adjustment is reasonable and should be approved. (Oncor witness Nelson)		
4.3.2	**Customer Growth Adjustment:** Is Oncor's proposed customer growth adjustment to test year kWh sales reasonable?	Yes. Oncor's proposed adjustment to the number of customers to reflect customer growth is reasonable. (Oncor witness Nelson)		
4.3.3	**Adjustments to reflect customer responses to power factor:** Is Oncor's adjustment to power factor billed kW reasonable?	Yes. Oncor's proposed adjustment to power factor billed kW uses the same methodology previously approved by the Commission in Docket No. 35717. That adjustment is reasonable and should be approved. (Oncor witness Nelson)		
4.4	**Design of Proposed Rates:** Does Oncor's design of its proposed distribution service rates for retail and wholesale rate classes equitably	Yes. Oncor relies on the results of its Cost-of-Service Study to design its proposed distribution rates, and those rates equitably recover costs		

#	Issues to be decided	Oncor's Position	Commission Staff/Intervenor Positions	Decision
	recover costs incurred by the Company?	incurred from the retail and wholesale classes. (Oncor witness Troxle)		
4.5	**Proposed Rates and Charges:** Are the rates and charges proposed by Oncor just and reasonable in accordance with PURA § 36.003?	Yes. The rates and charges proposed by Oncor are just and reasonable in accordance with PURA § 36.003. (Oncor witness Troxle)		
4.6	**Proposed Tariff for Retail Delivery Service:** Should Oncor's proposed Tariff for Retail Delivery Service be approved?	Yes. Oncor's proposed Tariff for Retail Delivery Service is reasonable, consistent with the Commission's requirements, and should be approved. (Oncor witnesses Troxle)		
4.7	**Proposed Tariff for Transmission Service:** Should Oncor's proposed Tariff for Transmission Service be approved?	Yes. Oncor's proposed Tariff for Transmission Service is reasonable, consistent with the Commission's requirements, and should be approved. (Oncor witnesses Troxle)		
5.0	**Rate-Case Expenses**			
5.1	**Calculation:** Has Oncor correctly calculated the rate-case expenses it is proposing to recover in this case?	Yes. Oncor has correctly calculated its rate-case expenses. (Oncor witness Schmidt)		
5.2	**Recovery of Rate-Case Expenses:** Are the rate-case expenses that Oncor proposes to recover reasonable and necessary?	Yes. The rate-case expenses that Oncor proposes to recover are reasonable and necessary. (Oncor witnesses Schmidt and Stover)		

Oncor Capital Investments

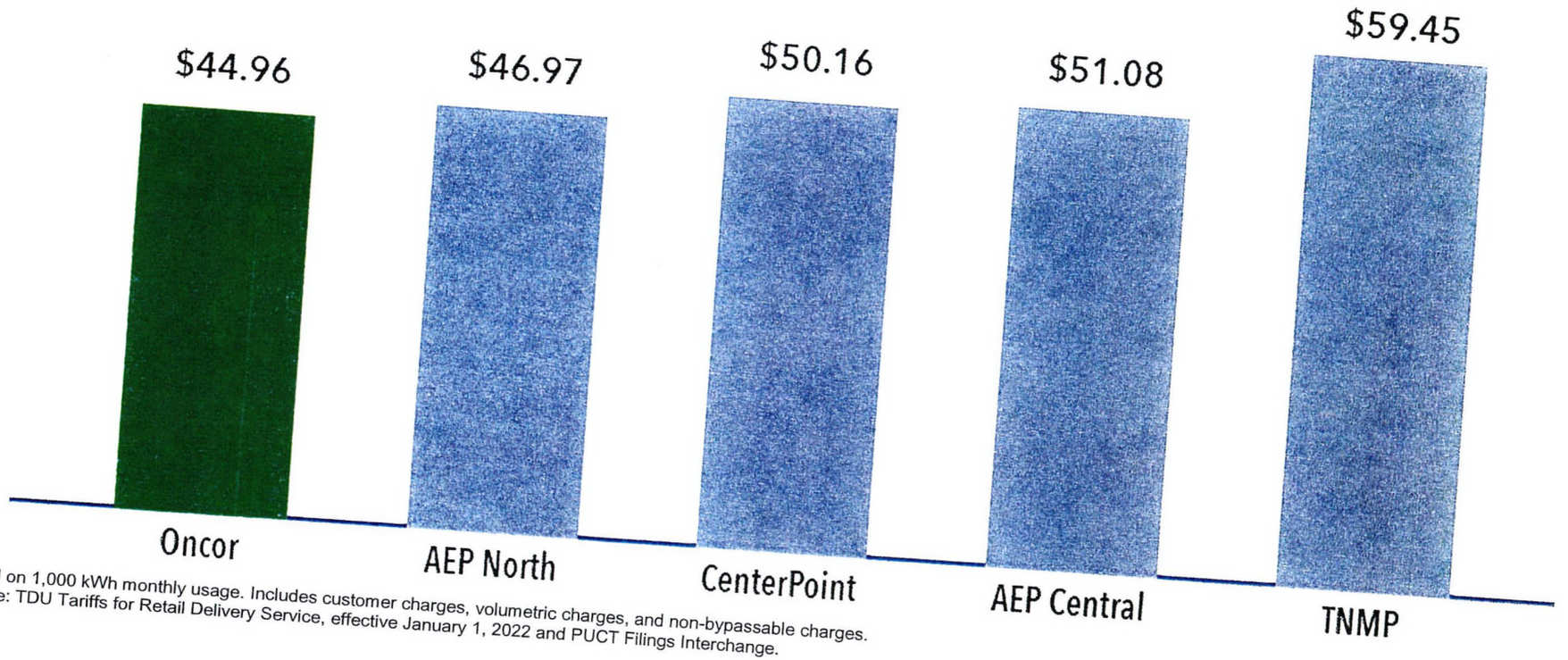


System Reliability



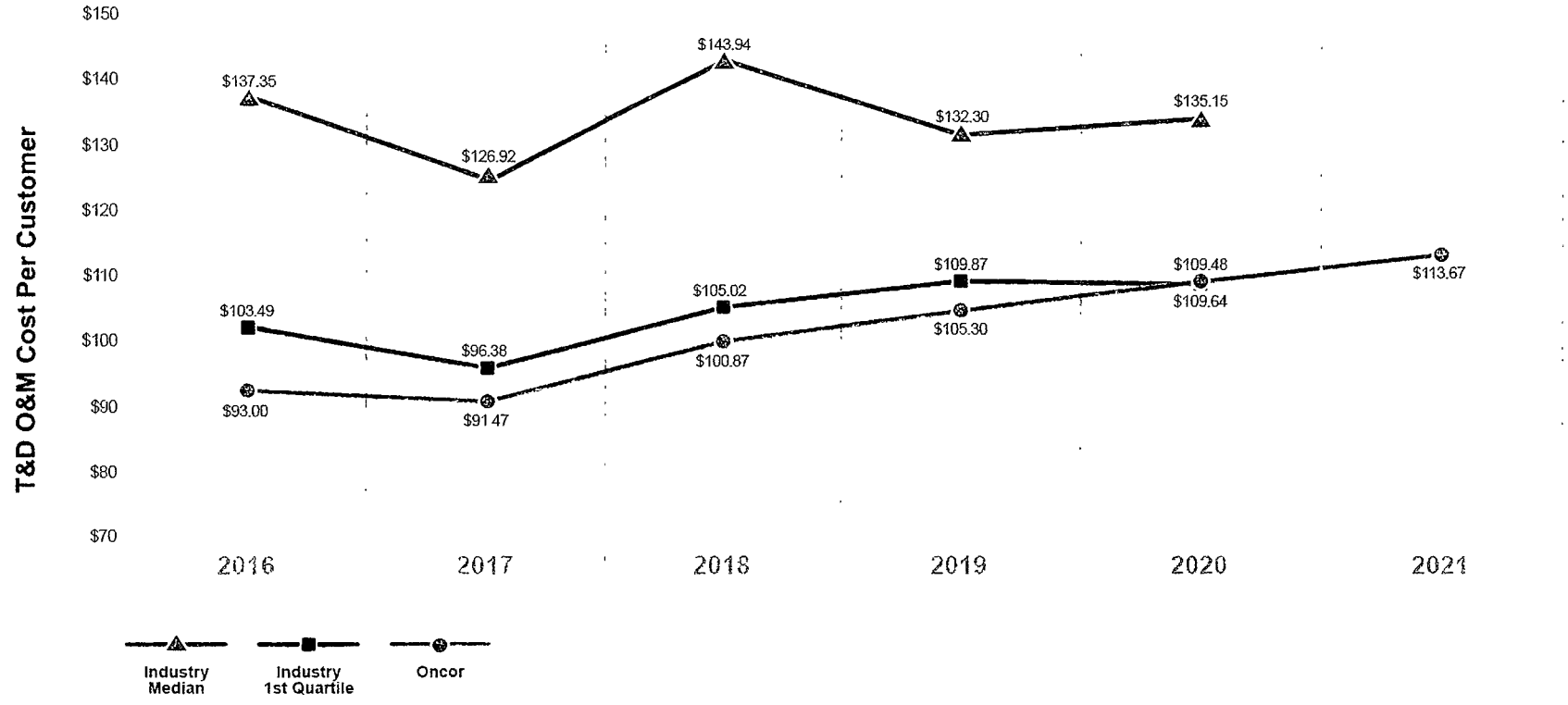
Sources: Benchmarking data, Public Service Commission (PSC) fillings
Non-Storm SAIDI: Outages greater than 1 minute, includes planned and forced Transmission and Distribution outages
Oncor data beginning 2018 includes system previously owned by Sharyland
2021 quartile data was not available when this chart was created

Rate Comparison of ERCOT IOUs



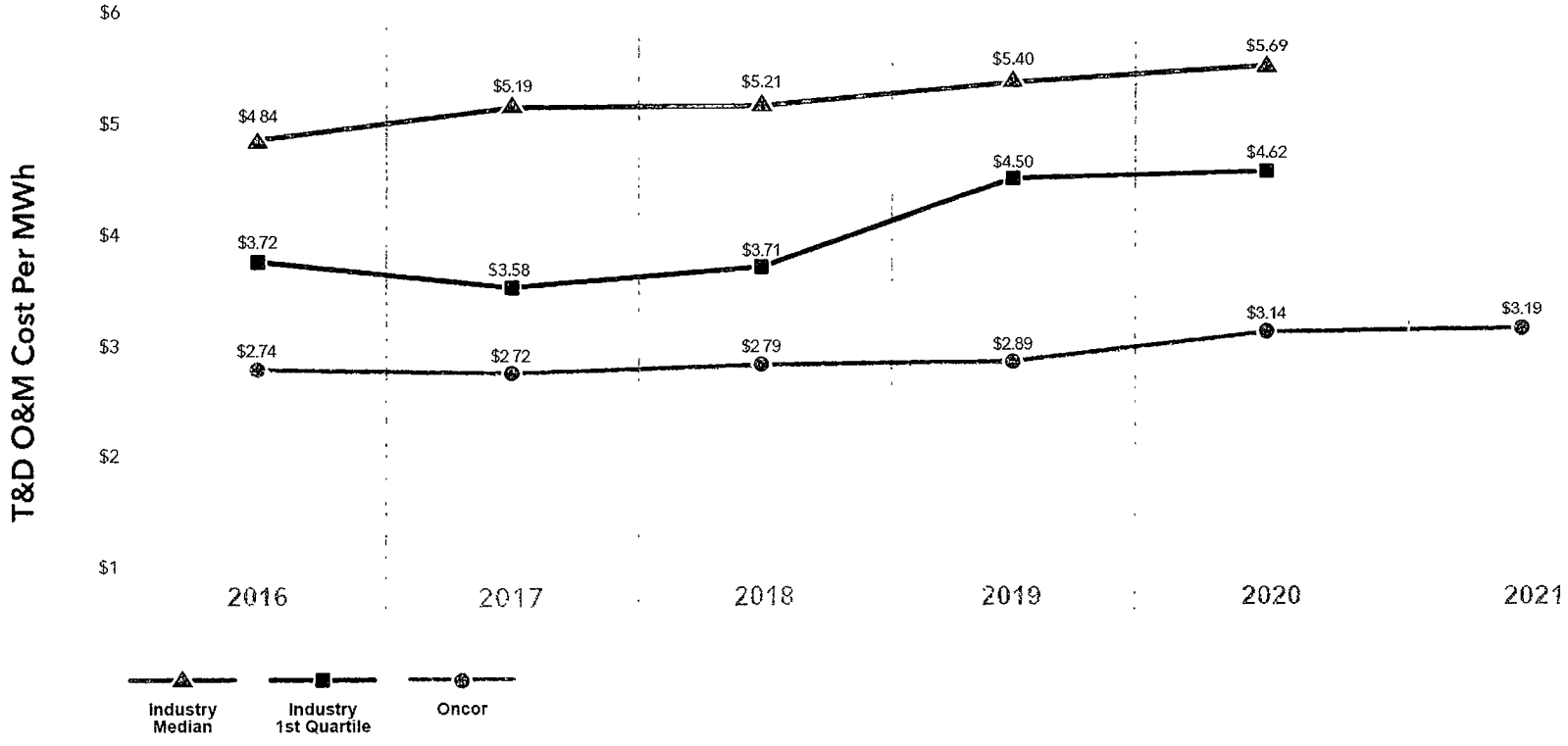
Based on 1,000 kWh monthly usage. Includes customer charges, volumetric charges, and non-bypassable charges.
Source: TDU Tariffs for Retail Delivery Service, effective January 1, 2022 and PUCT Filings Interchange.

Operational Cost Per Customer



Source: SNL Interactive, FERC Form 1
Operating Companies>=1M Customers as of 12/31/2020
Customers: Average number of customers per month per FERC Form 1
Transmission and Distribution Operation and Maintenance expenses
Transmission O&M excludes the following accounts:
561.4 Scheduling, system control and dispatch services
561.8 Reliability planning and standards development services
565 - Transmission of electricity by others
2021 industry data was not available when this chart was created.

Operational Cost Per MWh Delivered



Source. SNL Interactive, FERC Form 1
Operating Companies>=1M Customers as of 12/31/2020
MWh: Amount Delivered to Ultimate Consumers per FERC Form 1
Transmission and Distribution Operation and Maintenance expenses
Transmission O&M excludes the following accounts:
561.4 - Scheduling, system control and dispatch services
561.8 - Reliability planning and standards development services
565 - Transmission of electricity by others
2021 industry data was not available when this chart was created

Winter Storm Uri Preparedness Timeline

May 12 - June 18, 2020
Summer Preparedness Training
Knowledge-based training on ERCOT Energy Emergency Alerts (EEA) and Load Shed for TGO, EDOC and WDOC

May 31, 2020
System Emergency Operating Procedures (SEOPM) updated
Emergency Preparedness Plan that matches the utilization of available resources to varying degrees of emergencies

August 12, 2020
Oncor's Emergency Response Plan updated

August 16 - 18, 2020
Oncor System Emergency Center (SEC) activated for DFW storm restoration

September 16, 2020
Dallas Network and Fort Worth Network Clearance Drills
Tests the procedures and plans in place to recover from a network outage (e.g. multi feeder lockout, loss of transformer, failure to transfer load)

October 13 - November 19, 2020
Short Supply Training, Black Start Training and Backup Control Center Activation and Emergency Drill

November 21, 2020
System Emergency Operating Procedures (SEOPM) updated
Emergency Preparedness Plan that matches the utilization of available resources to varying degrees of emergencies

December 2, 2020
Activation of Oncor's Winter Readiness Checklist
Infrared inspections and other actions to prepare for cold weather season

February 6 - 7, 2021
Began securing additional contractors in anticipation of potential storm restoration work.

February 8, 2021
Detailed weather briefings initiated in advance for Winter Storm Uri
In-depth analysis of weather forecast

February 11, 2021
Emailed all 1,462 Large Commercial and Industrial ("LCI")-assigned accounts to inform them of the severe weather forecast and encourage them to sign up to receive ERCOT alerts.

February 12, 2021
Oncor requests additional restoration resources in advance of Winter Storm Uri Restoration resources requested through Southeastern Electric Exchange (SEE) Regional Mutual Assistance Group (RMAG) Event

February 13 - 14, 2021
Material Staging Sites identified and established

February 14, 2021
Oncor SEC activated in advance for Winter Storm Uri

February 15 - 22, 2021
SEC Fully Operational
Managing frequent update calls, expedited material management, and additional Vegetation Management and Construction Service resources

2020 | **2021**

WEEK OF FEBRUARY 8, 2021
Coordinated with ERCOT to identify and restore transmission outages that would impact generation availability or with the potential to cause significant transmission system constraints. Postponed scheduled work, increased staffing/support at T&D control centers, and ensured crews were staged and ready.

Frequent System Testing
Primary and backup communication and IT systems

Short Supply: In-depth knowledge and simulation-based training on EEAs, voltage reduction and load shed for TGO, EDOC and WDOC

Black Start Training: In-depth knowledge and simulation-based training on Black-Start for TGO, EDOC and WDOC

Backup Control Center Activation/Emergency Diesel Drill: In-depth knowledge and drill-based training on activating Backup Control Center and emergency generator for TGO

2022 Rate Case
Oncor Electric Delivery Company LLC

	Authoried in Docket No. 46957*	As Proposed in the 2022 Rate Case**	2022 Rate Case Increase/(Decrease)
Rate Base	$10,989,223,652	$18,714,992,110	$7,725,768,458
Rate of Return	7.44%	7.05%	-0.39%
Other Revenues	$69,510,028	$100,080,962	$30,570,934
Operating and Maintenance Expenses	$2,101,611,533	$2,793,714,829	$692,103,296
Depreciation, Amortization, & Other Expenses	$655,161,115	$921,660,501	$266,499,386
Taxes Other Than Federal Income Tax	$487,334,534	$610,790,957	$123,456,423
Federal Income Tax	$55,037,074	$165,204,036	$110,166,962
Return on Rate Base	$817,573,265	$1,319,402,009	$501,828,744
Total Cost of Service	$4,116,717,521	$5,810,772,332	$1,694,054,811
Total Adjusted Revenue Requirement***	$4,047,207,493	$5,710,691,370	$1,663,483,877

* As modified as a result of the Tax Cuts and Jobs Act in Docket No. 48325.
** Excludes Oncor NTU Distribution rate base and revenue requirement associated with WDSS since it is already included as an O&M expense for Oncor.
*** Total Adjusted Revenue Requirement is equal to the Total Cost of Service less Other Revenues.

List of Testifying Witnesses

Witness	Principal Subjects Covered	Vol./Page
E. Allen Nye, Jr. Chief Executive Officer	High-level introduction to Oncor; challenges and opportunities Oncor experienced during the last five years; importance of Oncor's maintaining a strong financial profile and partnering productively with stakeholders; importance of Oncor's recovering its reasonable costs of doing business and a competitive return of and on its investment in Texas.	Volume 1 Pages 28-47
James A. Greer Executive Vice President & Chief Operating Officer	Executive Summary; overview of Oncor; case organization; Oncor's RFP and revenue requirement; Oncor's functional organization; capital investment strategy; O&M strategy; resource allocation; employee levels and compensation; financial management; safety performance; reliability performance and service quality; need for legal services.	Volume 1 Pages 48-145
Wesley R. Speed Vice President Transmission Operations	Transmission system and organization; Oncor's transmission capital investment; InfraREIT Acquisition; 2017 Asset Exchange; resiliency and other initiatives; transmission and load-serving substation O&M activities; materials and supplies inventory; Electric Plant Held for Future Use; Schedule M.	Volume 1 Pages 146-320
Keith Hull Vice President Distribution Operations	Distribution organization; response to Winter Storm Uri; Distribution capital investment; Distribution O&M; outage response and emergency restoration; vegetation management; street lights; safety, health, and operations training; Distribution labor needs; materials and supplies inventory.	Volume 1 Pages 321-377

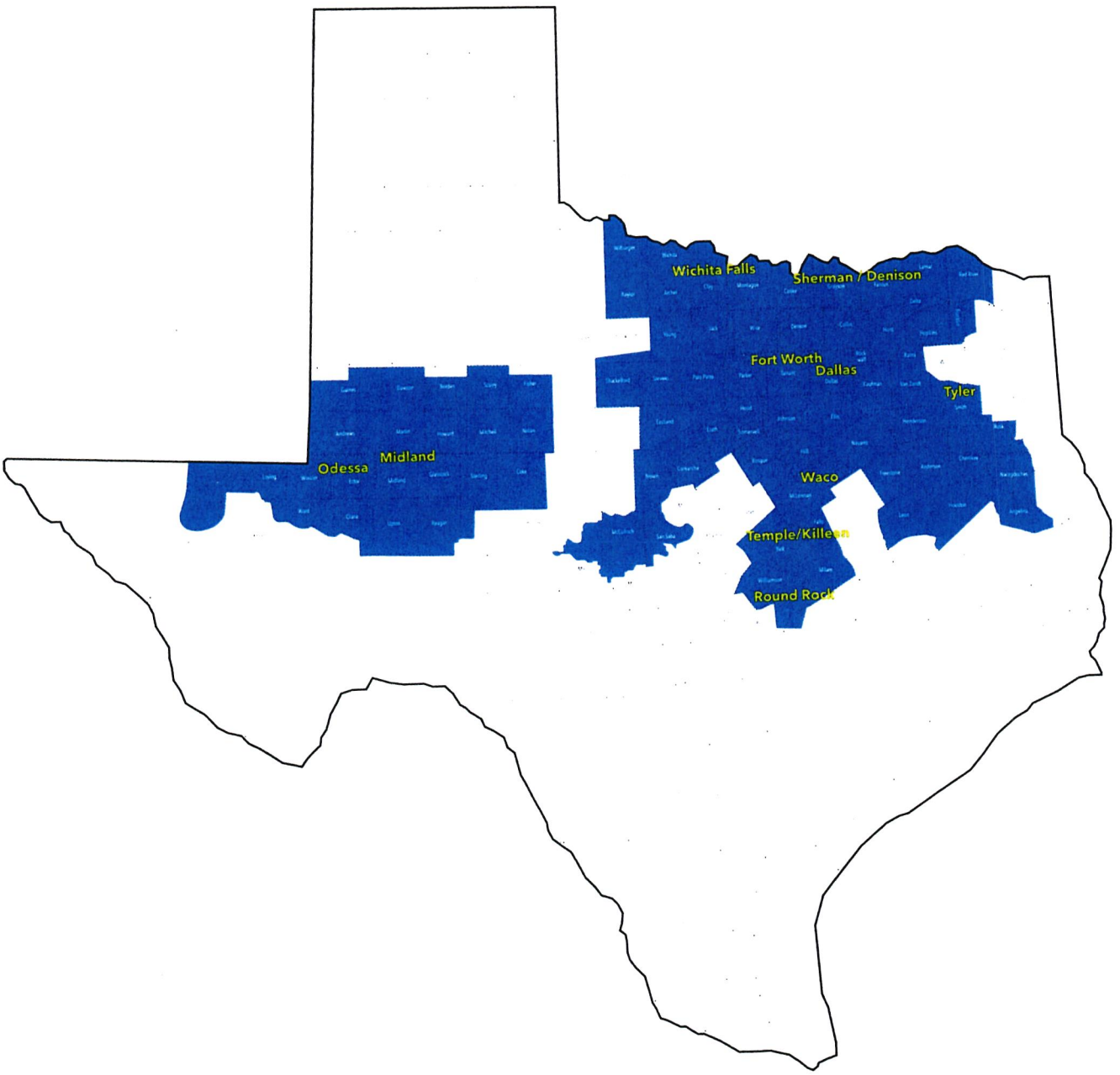
Witness	Principal Subjects Covered	Vol./Page
Joseph B. Nichols 1898 & Co.	Prudence of certain Sharyland assets acquired in 2019 InfraREIT acquisition.	Volume 1 Pages 378–445
Collin M. Martin Sr. Director Transmission Grid Operations	T&D Operations organization; Transmission Grid Operations; major operations initiatives since 2016; transmission management system replacement; telecommunications refresh program; new back-up control center; Sharyland operations transition; services provided to Oncor NTU and Sharyland; operations during Winter Storm Uri.	Volume 2 Pages 446-489
Hagen Haentsch Director Distribution Operations Center	Overview of Advanced Data Analytics; Oncor's grid technology investments and resulting benefits concerning use of Advanced Data Analytics; benefits to system reliability and customers, including outage reduction, enhanced storm damage prediction and restoration, targeted vegetation management, and customer engagement.	Volume 2 Pages 490-518
Ellen E. Buck Vice President Business & Operations Services	Overview of Business and Operations Services Organization; T&D Supply Chain; strategic sourcing and procurement; inventory management; working reserves and capital spares; facilities managed by T&D Supply Chain; COVID-19 response.	Volume 2 Pages 519-546
Daniel E. Hall Vice President Measurement & Billing	Overview of Measurement and Billing Organization; measurement services; transformation of metering services; billing services; reasonableness and necessity of O&M expenses associated with metering and billing; working meter reserves.	Volume 2 Pages 547-564

Witness	Principal Subjects Covered	Vol./Page
W. Alan Ledbetter Vice President and Controller	Financial reporting and accounting practices; description and functionalization of net rate base; description and functionalization of adjusted Cost of Service; Transmission Cost of Service.	Volume 2 Pages 565-724
Dane A. Watson Alliance Consulting Group	Depreciation study.	Volume 2 Pages 725-949
Joel S. Austin Senior Vice President & Chief Digital Officer	Overview of Technology, Measurement & Billing, and Customer Engagement ("TMC") organization; overview of cost controls and TMC-related O&M costs; overview of Technology Modernization Program; overview of TMC capital investments; outsourcing relationships.	Volume 3 Pages 950-983
Malia A. Hodges Senior Vice President & Chief Information Officer	Overview of Technology group; overview of process for ensuring investments and costs are prudent; overview of major technology projects since December 31, 2016; retirements of technology assets; reasonableness and necessity of investments.	Volume 3 Pages 984-1056
Matthew D. Smith Woodview Advisors, LLC	Outsourcing solutions for IT, customer care, and Human Resources; governance of service providers; reasonableness of test year costs for outsourcing contracts.	Volume 3 Pages 1057-1087
Michael G. Grable Vice President Regulatory Strategy & Chief Compliance Officer	Standards for affiliate transactions; overview of affiliate services/transactions provided to Oncor from affiliates; known and measurable changes to affiliate expenses; overview of affiliate services/transactions provided to affiliates by Oncor; compliance with rules governing affiliate transactions;	Volume 3 Pages 1088-1167

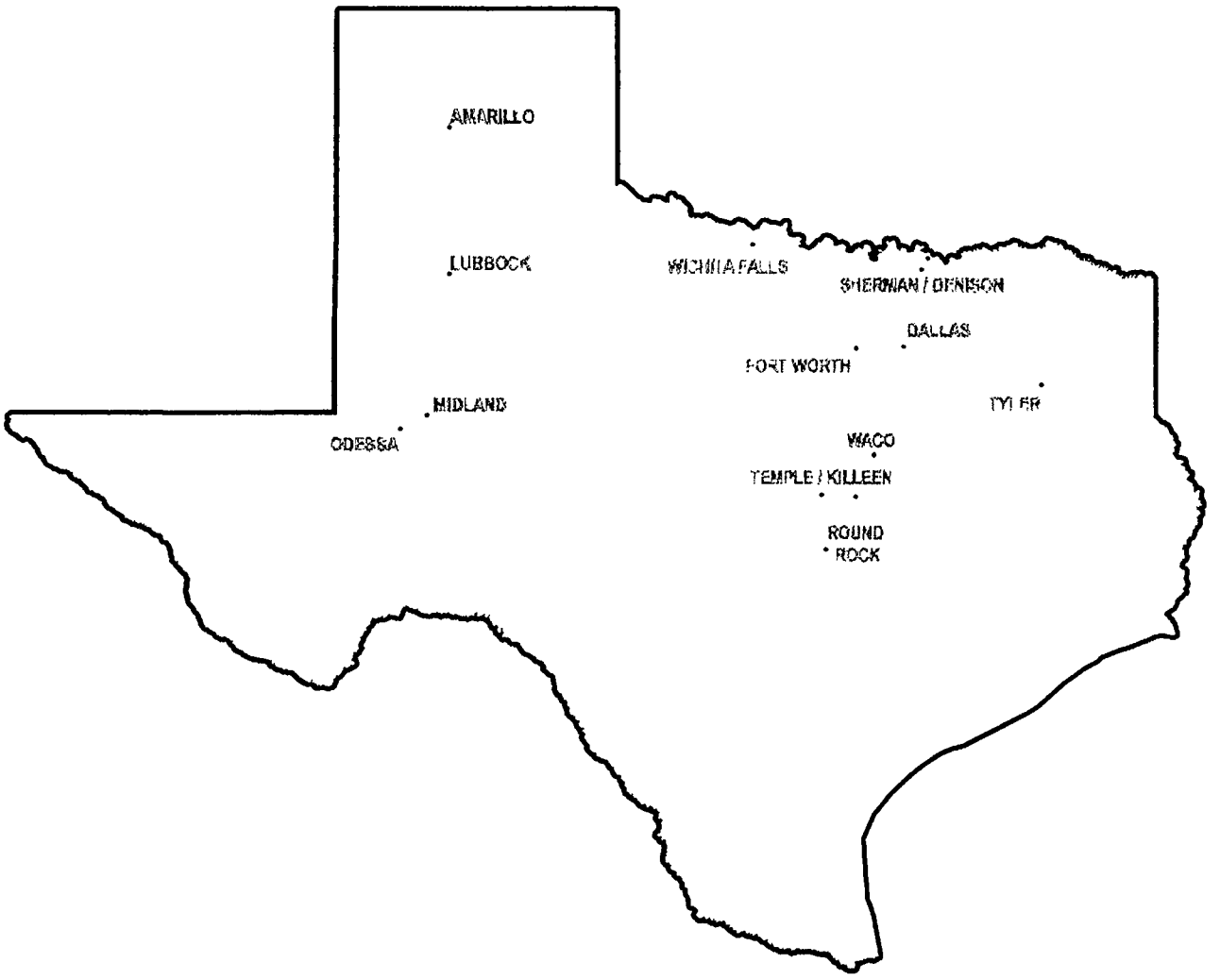
Witness	Principal Subjects Covered	Vol./Page
	sustainability/environmental, social, and governance initiatives.	
Gregory S. Wilson Lewis & Ellis, Inc.	Oncor's insurance coverage; self-insurance reserve; accrual and target reserve recommendations; cost-benefit analysis.	Volume 3 Pages 1168-1201
Angela Y. Guillory Senior Vice President Human Resources & Corporate Affairs	Human resources overview; hiring, developing, and retaining skilled work force; labor costs; incentive and compensation details.	Volume 3 Pages 1202-1223
Bonnie L. Clutter Assistant Controller	Federal income tax expense calculation; accumulated deferred federal income taxes; state and local taxes; taxes other than income taxes; franchise fees.	Volume 3 Pages 1224-1281
Ashley Thenmadathil Manager Financial Planning – Management Reporting	Cash working capital calculation/lead-lag study; materials and supplies; prepayments; self-insurance reserve accounting.	Volume 3 Pages 1282-1349
Kevin R. Fease Vice President & Treasurer	Cost of debt; credit ratings; program to reduce debt costs; cost of debt calculation; sustainable financing/sustainable bond framework; capital structure and overall cost of capital; pensions and OPEBs; insurance overview.	Volume 3 Pages 1350-1374
Ellen Lapson Lapson Advisory	Importance of financial strength and resilience; access to debt financing requires strong credit quality; capital structure affects credit ratings and financial strength; Oncor's current financial status; equity investments in Oncor; appropriate regulatory capital structure for Oncor.	Volume 4 Pages 1375-1628
Dylan W. D'Ascendis Scott Madden, Inc.	Recommended ROE and weighted average cost of capital; capital market conditions; regulatory principles relevant in determining fair rate of return; Oncor and utility proxy group; capital structure support;	Volume 4 Pages 1629-1756

Witness	Principal Subjects Covered	Vol./Page
	common equity cost rate models; common equity cost rate adjustments; conclusions regarding ROE and capital structure.	
Alan S. Taper Aon PLC	Overview of pensions and OPEBs accounting and regulatory rules; second OPEB plan; calculating postretirement benefit obligations; transactions to reduce pension liability since last base-rate case; reasonableness and necessity of test year cost for pensions and OPEBs.	Volume 4 Pages 1757-1788
Matthew A. Troxle Director Rates & Load Research	Rate Class Cost of Service Study; rate design; Tariff for Retail Delivery Service; Tariff for Transmission Service; Oncor NTU Tariff for Transmission Service; other services.	Volume 4 Pages 1789-1847
Darryl E. Nelson Senior Manager Regulatory Rates and Load	Customer growth adjustments; weather normalization adjustments; adjustments to reflect customer responses to power factor.	Volume 4 Pages 1848-1870
Robert A. Schmidt Regulatory Manager III	Rate-case expenses calculation; recovery method; amortization period; selection of legal and consulting resources; rate-case expense controls; reasonableness and necessity of rate-case expenses.	Volume 4 Pages 1871-1890
Andrea M. Stover Partner, Baker Botts L.L.P.	Standards for recovery of rate-case expenses; methodology used to evaluate reasonableness; results of research; opinions and conclusions.	Volume 4 Pages 1891-1917

Oncor Service Area



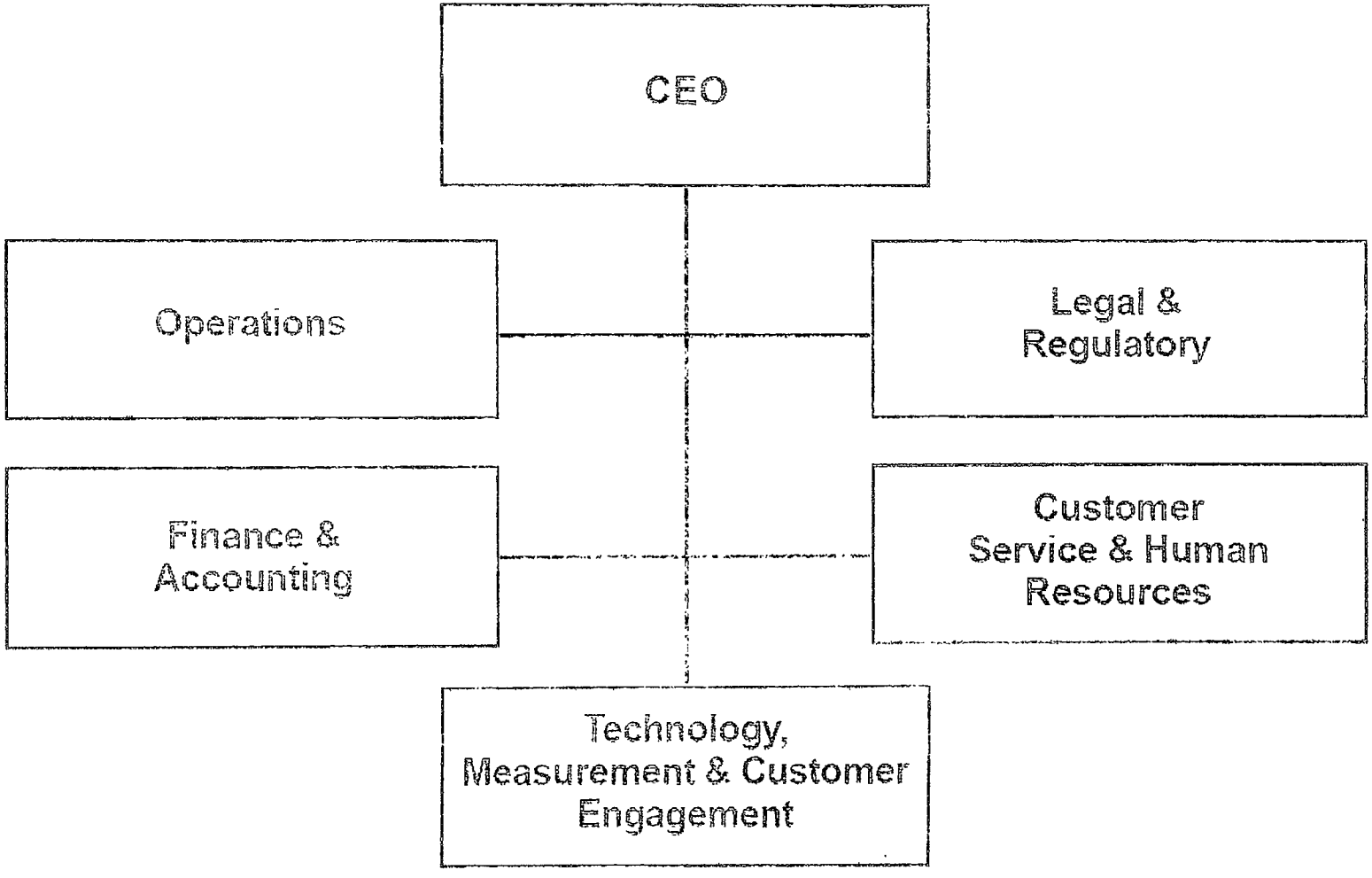
Oncor Operating Area



Counties with Transmission and/or Distribution facilities

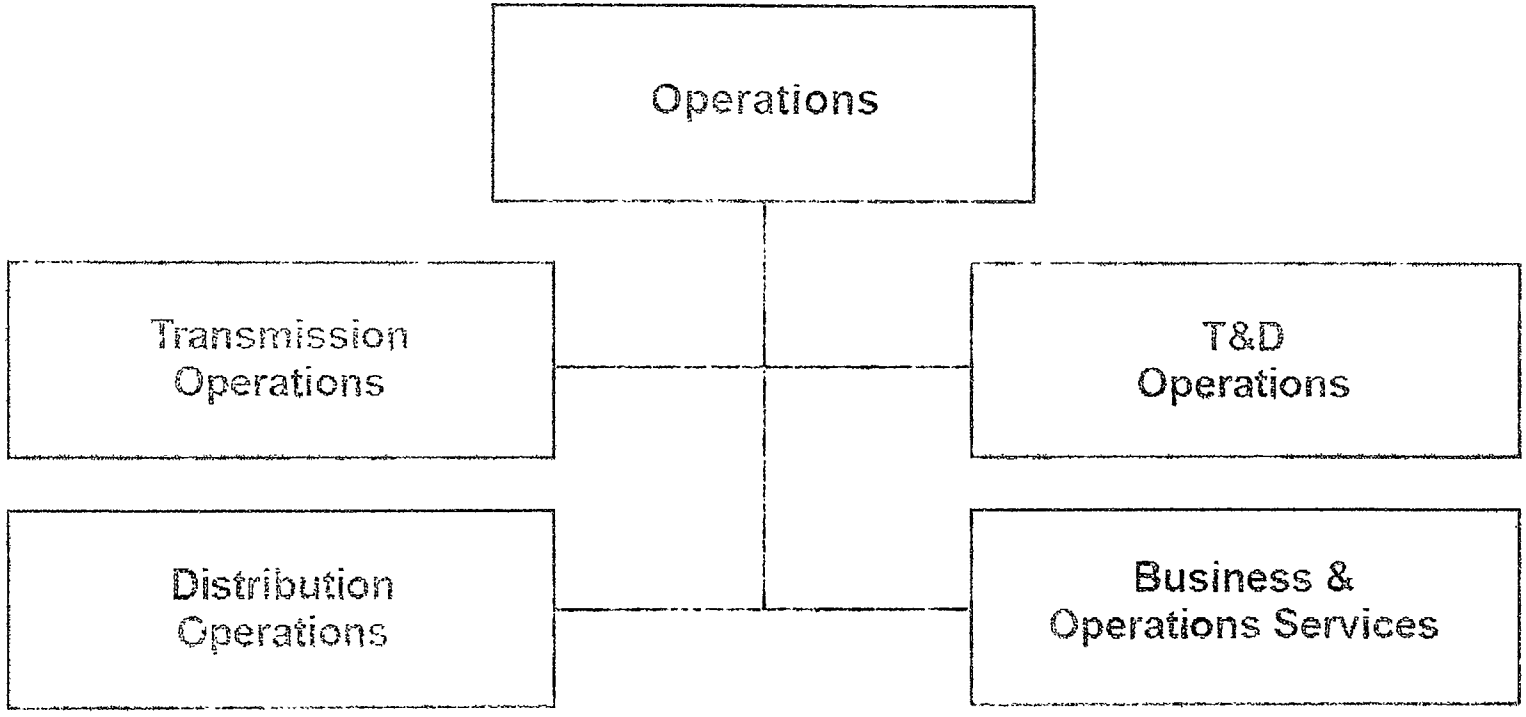
Organization Chart, CEO

As of 05/11/2022



Organization Chart, Operations

As of 05/11/2022

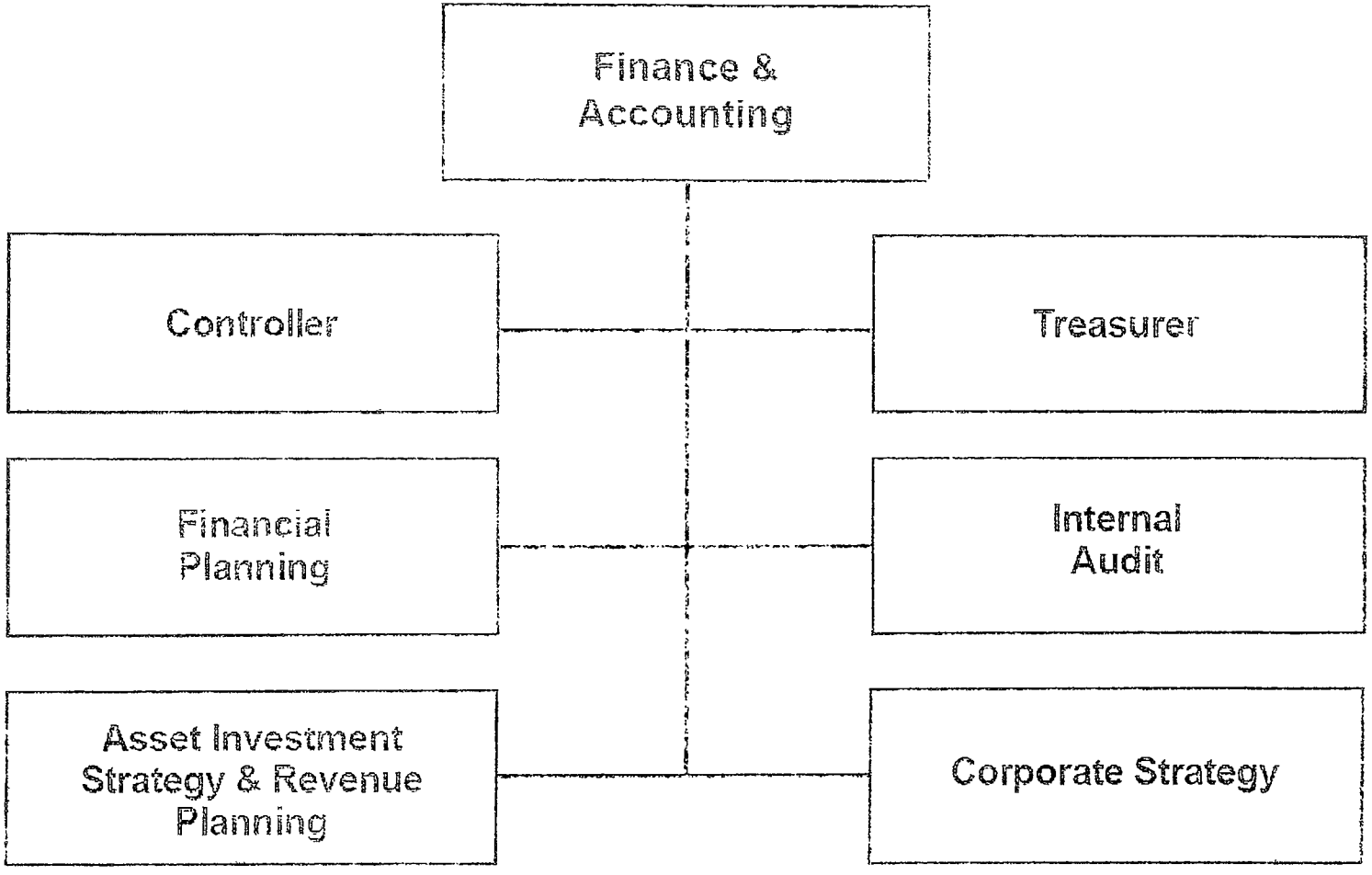


Description of Operations

Organization	Manager	Summary of Activities
Operations	Jim Greer, Executive Vice President and Chief Operating Officer; 38 years with Oncor and its former affiliated companies	Responsible for distribution and transmission engineering, construction, maintenance, operations, strategic sourcing and procurement, continuous improvement, as well as system operations.
Transmission Operations	Wes Speed, Vice President; 31 years with Oncor and its former affiliated companies	Responsible for Oncor's design, construction, maintenance, and field operation of its high voltage electric transmission system and related substations. This includes the following groups: Transmission Engineering; Transmission Operations; System Protection; and Transmission Program Management Office.
Distribution Operations	Keith Hull, Vice President; 40 years with Oncor and its former affiliated companies	Responsible for the engineering, construction, maintenance, and operation of Oncor's distribution system. This includes the following groups: Distribution Engineering; Region Operations (Metro East, Western & Southeast regions); Distribution Program Management Office; Distribution Services; and Safety, Health, and Operations Training.
T&D Operations	Mark Carpenter, Senior Vice President; 46 years with Oncor and its former affiliated companies	Responsible for Oncor's T&D Operations organization. This includes the following groups: T&D Services; Transmission Grid Operations; Distribution Operations Center (East & West); Environmental and NERC Compliance; System Operations Distribution Administration; and SCADA Automation.
Business and Operations Services	Ellen Buck, Vice President; 16 years with Oncor	Responsible Oncor's Business and Operations Services organization. This includes the following groups: Asset Planning; T&D Supply Chain; Engineering Standards and Maintenance Strategy; the Center for Excellence and Innovation; and Transmission Services.

Organization Chart, Finance & Accounting

As of 05/11/2022



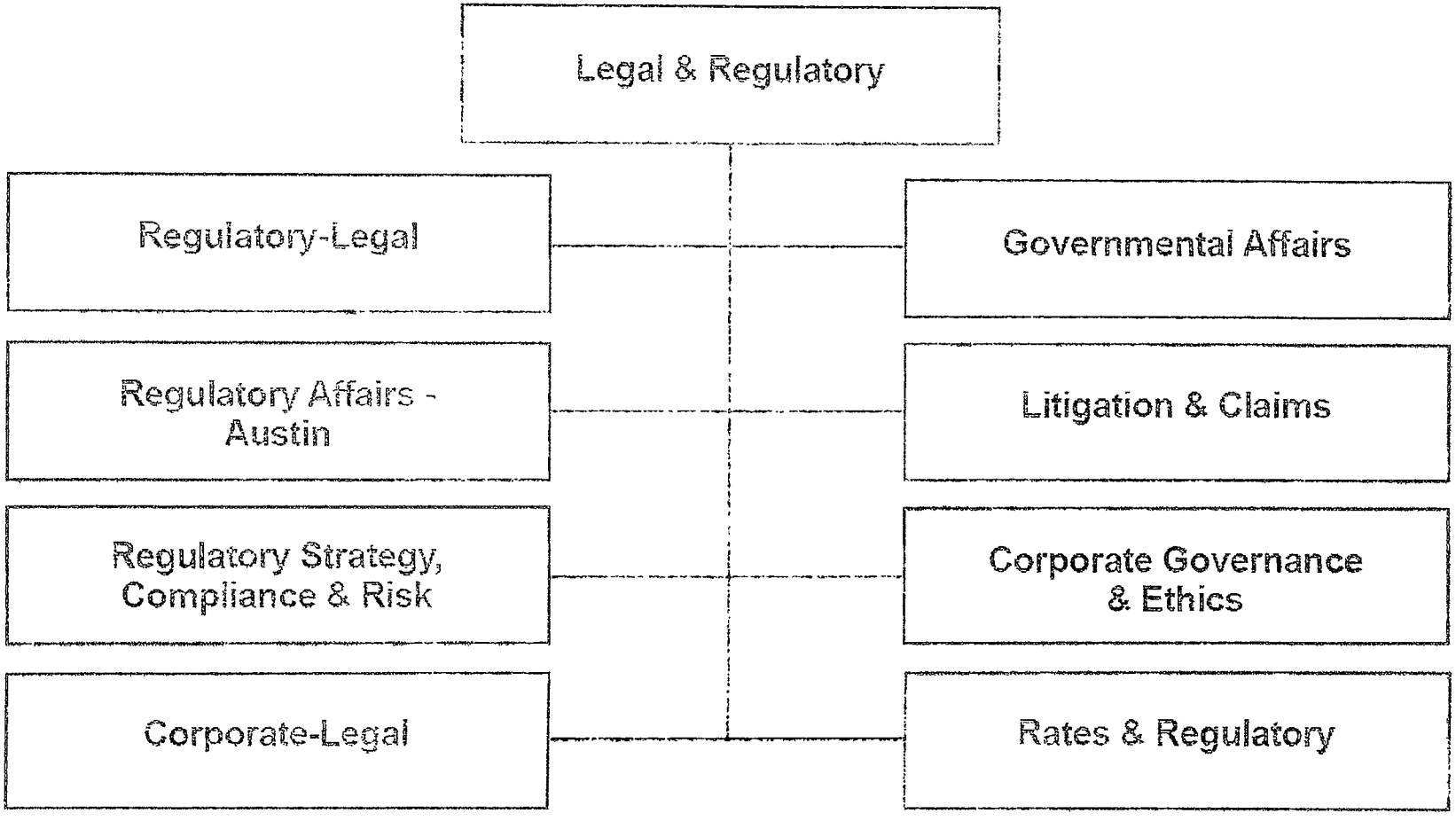
Description of Finance & Accounting

Organization	Manager	Summary of Activities
Finance & Accounting	Don Clevenger, Senior Vice President and Chief Financial Officer; 26 years of industry experience, including 17 years with Oncor	Responsible for the long-term financial plan that supports financial goals for Oncor; maintaining accurate books and records; implementing effective control structures and risk assessment procedures to ensure consistent valuation of all major transactions, decisions and strategic initiatives; and communicating financial and operating performance goals to key stakeholders.
Controller	Alan Ledbetter, Controller; 41 years with Oncor and its former affiliated companies	Responsible for ensuring that financial information is accurately collected, summarized, and timely reported in accordance with Generally Accepted Accounting Principles and that the books and records are maintained in a manner consistent with regulatory policies and procedures in compliance with the rules and regulatory orders of the Public Utility Commission of Texas and other applicable regulatory agencies.
Financial Planning	Erin McClure, Vice President; 22 years with Oncor and its former affiliated companies	Responsible for preparing Oncor's financial projections, reporting financial performance to executive management and equity owners, and supporting Oncor management in meeting organizational financial objectives and performing financial analysis for various strategic transactions under consideration by Oncor.
Asset Investment Strategy & Revenue Planning	Tom Riley, Director; 34 years with Oncor and its former affiliated companies	Responsible for evaluating possible allocation of Oncor capital spend between Transmission, Distribution and Information Technology; and revenue planning and analysis.

Organization	Manager	Summary of Activities
Internal Audit	Mark Rounds, Senior Director; 20 years of Public Accounting and Audit experience, including 8 years with Oncor	Responsible for providing independent and objective consulting and assurance services designed to evaluate and improve the effectiveness of Oncor's risk management, control, and governance processes including SOX compliance strategies to support the adequacy and effectiveness of the Company's internal controls over financial reporting.
Treasurer	Kevin Fease, Vice President; 23 years of industry experience, including 17 years with Oncor and its former affiliated companies	Responsible for the overall management of financing activities to ensure Oncor's appropriate capitalization, access to adequate funds, cash management, trusts investment management, financial compliance and insurable risk management.
Corporate Strategy	Geoff Bailey, Vice President; 17 years of experience including 7 years with Oncor	Responsible for identifying technologies and services disruptive to Oncor's business, and developing and executing enterprise-wide strategies to mitigate disruption, as well as general inorganic growth and Merger & Acquisition activity.

Organization Chart, Legal & Regulatory

As of 05/11/2022



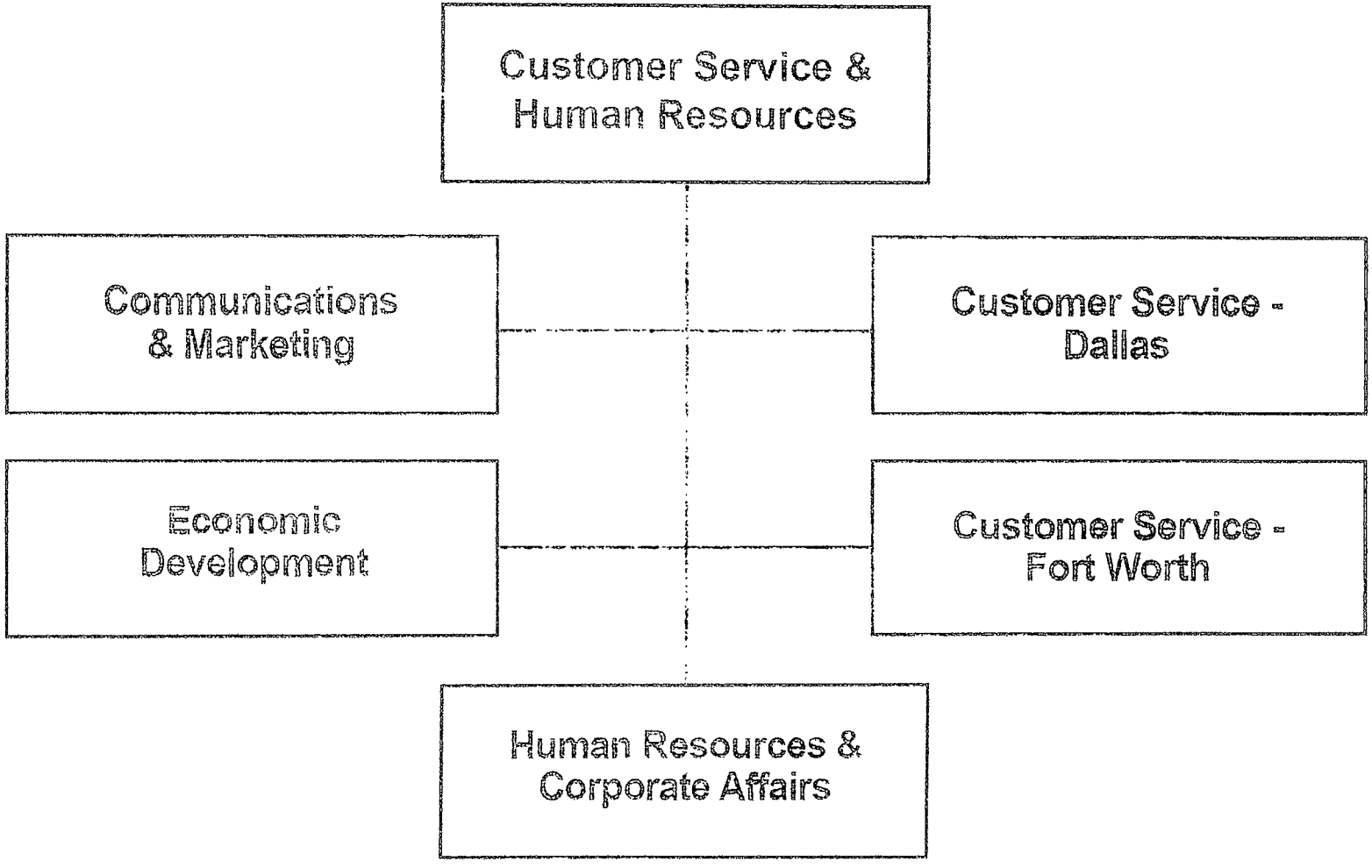
Description of Legal & Regulatory

Organization	Manager	Summary of Activities
Legal & Regulatory	Matt Henry, Senior Vice President, General Counsel, and Secretary; 28 years of experience, including 4 years with Oncor	Oversees Oncor's legal, compliance, regulatory, corporate secretary, and governmental affairs activities.
Regulatory-Legal	Howard V. Fisher, Senior Counsel; 37 years of legal experience, including 17 years with Oncor and its former affiliated companies	Provides legal services for formal proceedings and other matters at the Public Utility Commission (PUC) and before municipal regulators, and provides internal guidance on regulatory matters.
Governmental Affairs	Walt Jordan, Vice President; 39 years of experience with Oncor and its former affiliated companies	Oversees Oncor's interface with members and staff of the Texas legislature, executive branch, state agencies, United States Congress, and third-party stakeholders.
Regulatory Affairs-Austin	Elizabeth Jones, Vice President; 34 years of experience, including 22 years with Oncor and its former affiliated companies	Oncor regulatory interface and liaison to PUC commissioners and staff, to ERCOT, to Texas RE and to other stakeholders in the Austin regulatory community; regulatory resource to the Oncor Governmental Affairs group.
Litigation & Claims	John Stewart, Vice President and Associate General Counsel; 40 years of legal experience, including 17 years with Oncor and its former affiliated companies	Oversees all claims and litigation matters and is responsible for representing and defending the interests of Oncor in threatened claims and litigation, including commercial disputes and personal injury matters.
Sustainability, Regulatory Strategy, Compliance, and Risk	Mike Grable, Vice President; 24 years of experience, including 3 years with Oncor	Responsible for enterprise-wide sustainability efforts, compliance, risk-management tracking and reporting, and certain regulatory items; this includes but is not limited to compliance with Oncor's PUC Code of Conduct; manages interactions with Oncor's PUC-defined affiliates; and primary accountability for Oncor's certificate of convenience and necessity (CCN) filings at the PUC, Oncor's relationship with the Federal Energy Regulatory Commission (FERC), and certain Department of Energy (DOE), FERC, and PUC filings.

Organization	Manager	Summary of Activities
Corporate Governance and Ethics	Jennifer Lee-Sethi, Associate General Counsel, Assistant Secretary and Chief Ethics Officer; 22 years of legal experience, including 19 years with Oncor and its former affiliated companies	In addition to serving as Associate General Counsel in the Corporate Legal organization, serves as Assistant Secretary to company boards and oversees corporate governance activities; oversees and monitors the company's corporate Code of Conduct and ethics program.
Corporate-Legal	Mike Davitt, Vice President and Associate General Counsel; 26 years of legal experience, including 6 years with Oncor	Responsible for providing legal support and internal guidance to Oncor on corporate and other legal matters.
	Veronica Cartwright, Associate General Counsel; 17 years of legal experience, including 14 years with Oncor	Responsible for providing legal support and internal guidance to Oncor on corporate, finance, Securities & Exchange Commission and other legal matters.
Rates and Regulatory	Mike Sherburne, Vice President; 42 years of experience with Oncor and its former affiliated companies	Responsible for directing and overseeing Oncor's rates and retail regulation, municipal relations, regulatory financial, and regulatory support matters; assisting Compliance & Risk in ensuring that all Oncor affiliate transactions are conducted appropriately; researching and analyzing various rules, laws, and regulations to determine the impact on the electric utility industry; and counseling Oncor management on utility accounting and financial issues.

Organization Chart, Customer Service & Human Resources

As of 05/11/2022



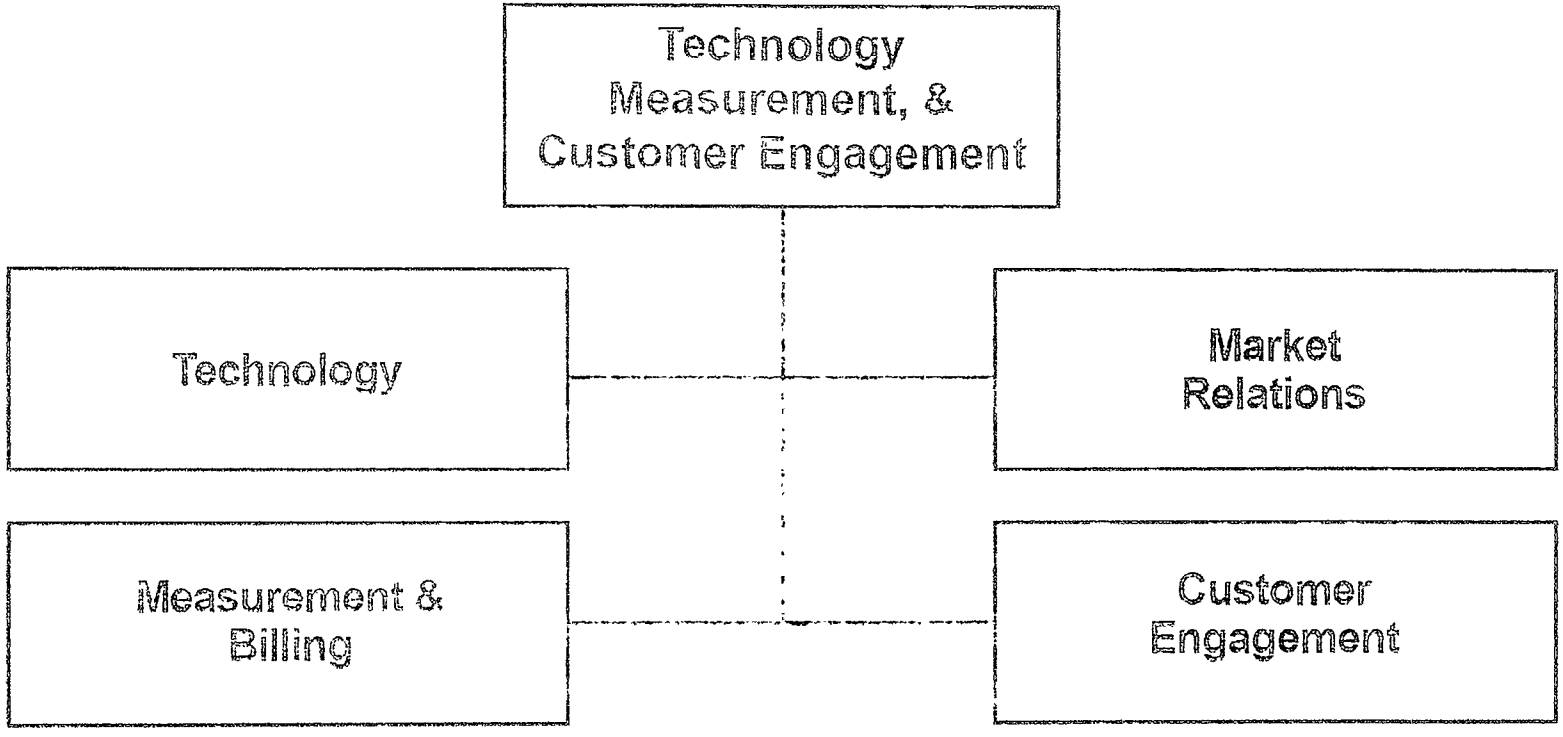
Description of Customer Service & Human Resources

Organization	Manager	Summary of Activities
Customer Service & Human Resources	Debbie Dennis, Senior Vice President, Chief Customer Officer & Chief Human Resources Officer; 43 years of experience with Oncor and its former affiliated companies	Oversees customer service, economic development, corporate communications and all human resources, corporate security and corporate affairs functions.
Communications & Marketing	Connie Piloto, Director; 16 years of experience, including 7 years with Oncor	Responsible for planning and executing long-term external and internal communications that encompass providing customers and employees with better information; overseeing' all external, internal, legislative, regulatory and executive communications, media relations, marketing, advertising, and social media; investment and strategic focus; and protecting, managing and enhancing the Oncor brand.
Economic Development	Wilson Peppard, Director; 13 years with Oncor	Responsible for leading Oncor economic development efforts to enhance economic growth within the service territory. Oversee developing, implementing and managing business recruitment, expansion and community development programs. Interface with internal, as well as local, regional and state economic development partners for successful results.

Organization	Manager	Summary of Activities
Human Resources & Corporate Affairs	Angela Guillory, Senior Vice President; 28 years of experience with Oncor and its former affiliated companies	Oversees human resource activities related to operations, compensation, benefits, training, development, employee relations, workforce strategy, diversity, equity and inclusion as well as corporate security and corporate affairs.
Customer Service – Fort Worth	Richard Casarez, Vice President; 40 years of experience with Oncor and its former affiliated companies	Oversees city and community relations for the Fort Worth, West, and South Regions of the Oncor service territory, including maintaining relationships with local governmental entities (cities and counties) and with community leaders; addressing franchise, regulatory, legislative, construction and maintenance, operations, economic development, customer service and emergency management/restoration issues with affected city, county, and community stakeholders.
Customer Service - Dallas	Charles W. Elk, Vice President; 40 years of experience with Oncor and its former affiliated companies	Oversees city and community relations for the Dallas, East and Metro Oncor service territory, including maintaining relationships with local governmental entities (cities and counties) and with community leaders; addressing franchise, regulatory, legislative, construction and maintenance, operations, economic development, customer service and emergency management/restoration issues with affected city, county, and community stakeholders.

Organizational Chart, TMC

As of 05/11/2022

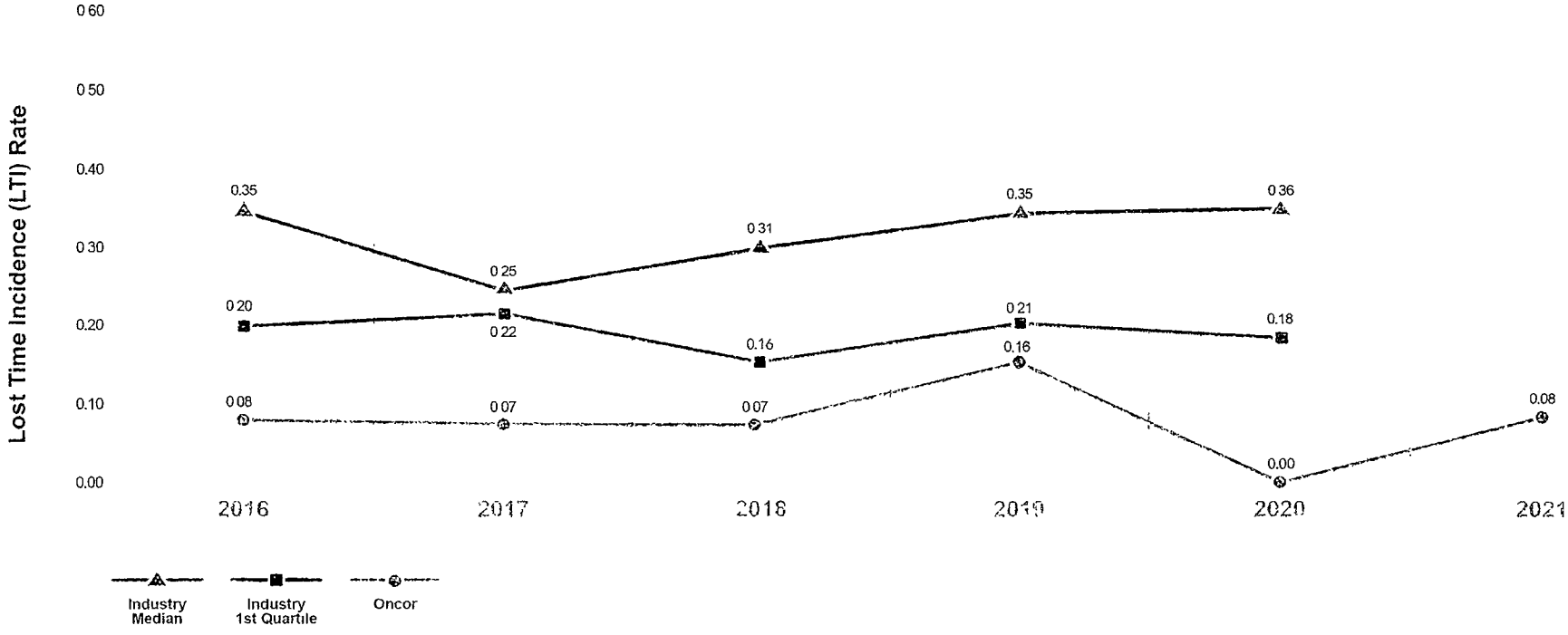


Description of Technology, Measurement, & Customer Engagement

Organization	Manager	Summary of Activities
Technology, Measurement, & Customer Engagement (TMC)	Joel Austin, Senior Vice President & Chief Digital Officer; 35 years of experience, including 30 years with Oncor and its former affiliated companies	Manages the modernization and use of advanced information and telecommunication technologies, and manages the functions associated with measurement and billing, market relations, and customer engagement groups. Technology functions include digital communications, self-service solutions, and automation capabilities through omnichannel communication, including smartphones, messaging applications, and social media that provide customers with greater information access and transparency.
Technology	Malia Hodges, Senior Vice President and Chief Information Officer; 22 years of experience, including 10 years with Oncor and its former affiliated companies	Responsible for the information and telecommunication technologies that operate in coordination with the transmission and distribution electric grids. The group focuses on reliability, data quality, advancements in information and telecommunication technology capabilities, analytics, cyber security for both information and operations technology, workforce productivity, customer service management, and maintaining the digital control room.
Measurement & Billing	Daniel Hall, Vice President; 21 years of experience with Oncor and its former affiliated companies	Responsible for the development and maintenance of metering standards, policies, practices, and procedures used during the installation and maintenance of advanced electric meters and their associated equipment. Also responsible for managing the revenue management function, including customer billing, payments, and collections.
Customer Engagement	Allyn Giles, Vice President; 27 years of experience with Oncor and its former affiliated companies	Manages Contact Center and Digital services to our customers, Key Account service to Large Commercial and Industrial Customers, and drives Oncor's digital innovations for our customers and stakeholders.
Market Relations	Autry Warren, Vice President; 41 years of experience with Oncor and its former affiliated companies	Responsible for effective interaction with all ERCOT Market Participants, execution of the Company's Energy Efficiency program, as well as monitoring and reporting on the company's market performance with the PUCT.

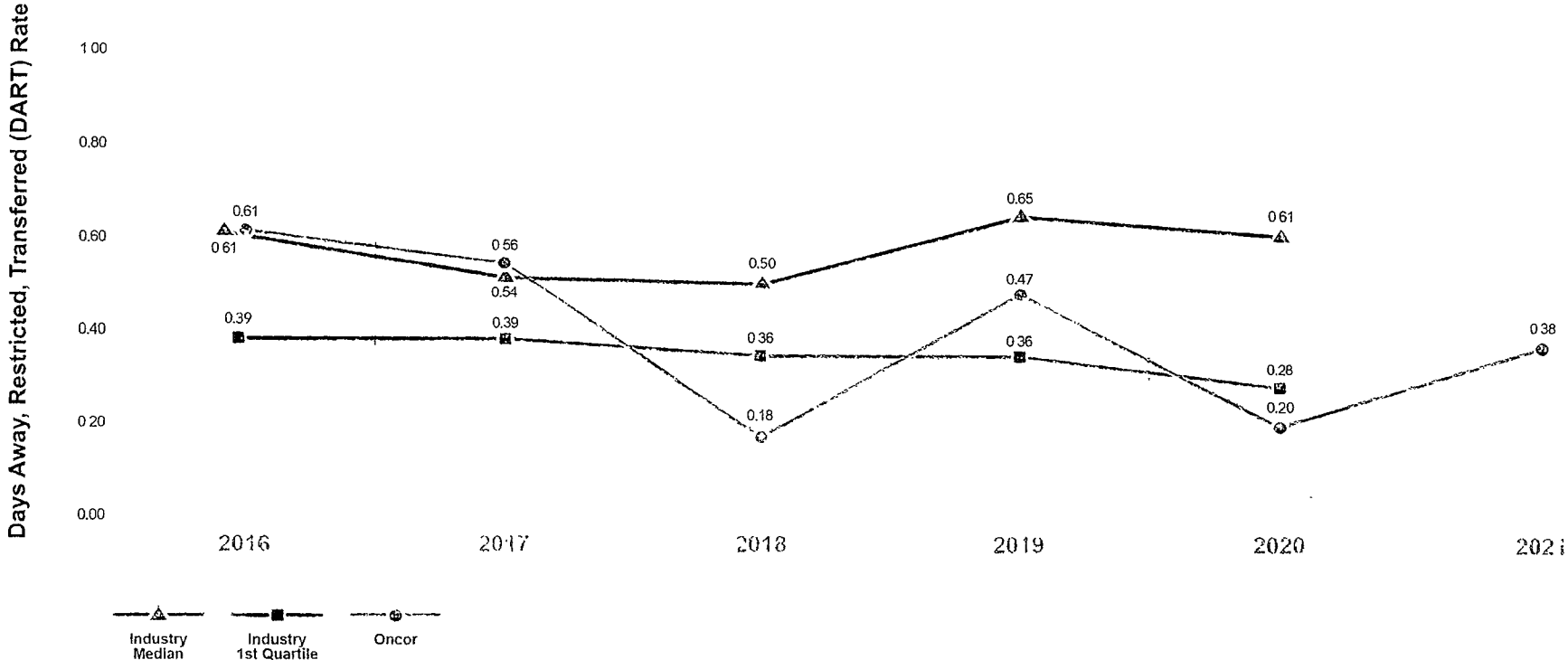
This information is highly sensitive confidential and will be made available only after execution of a certification to be bound by the draft protective order set forth in Section VII of this Rate Filing Package or a protective order issued in this docket.

Oncor Safety Performance (LTI)



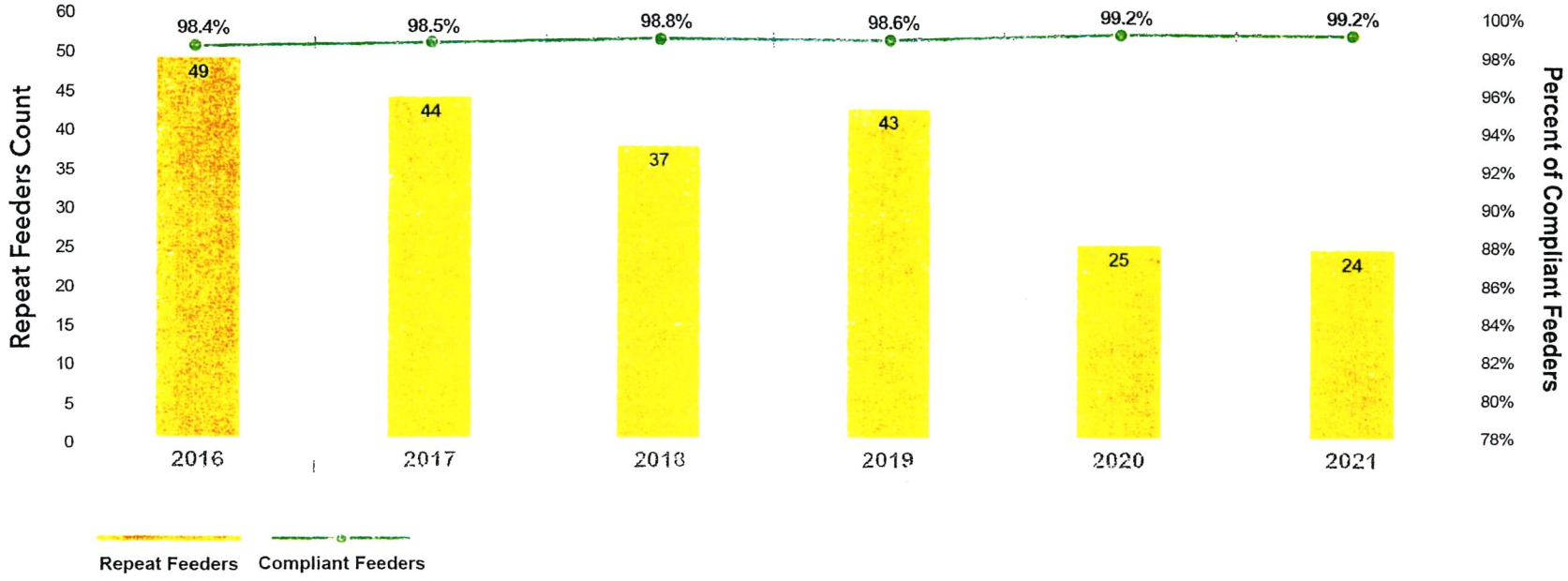
Source: Edison Electric Institute (EEI) Safety Survey blind results, published in 2021 Data is Confidential and Proprietary.
Lost Time Incidence (LTI) Rate = (LTI injuries * 200,000 hours)/hours worked
2021 quartile data was not available when this chart was created.
2021 Injury/Illness Data - exclusive of public health emergency related illnesses

Oncor Safety Performance (DART)



Data Source: Edison Electric Institute (EEI) Safety Survey blind results, published in 2021 Data is Confidential and Proprietary.
2021 quartile data was not available when this chart was created.
Days Away, Restricted, Transferred (DART) Rate = (DART injuries * 200,000 hours)/hours worked
2021 Injury/Illness Data - exclusive of public health emergency related illnesses

Feeder Reliability



Repeat Feeder – Feeders with non-storm, Distribution, >=5 minutes and forced SAIDI and/or SAIFI values greater than four times the system average in consecutive years per Title 16 Tex. Admin. Code § 25.52
Compliant Feeders – percentage of feeders meeting the reliability requirements outlined in Title 16 Tex. Admin. Code § 25.52
Does not include feeders previously owned by Sharyland. (The Service Quality Report, pursuant to 16 Tex. Admin. Code § 25.81, for feeders previously owned by Sharyland is filed separately.)
Feeder count as of 12/31/2021 – 3,188 (feeders with ten or more customers per Title 16 Tex. Admin. Code § 25.52)

2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
JAMES A. GREER

The information is being provided in electronic format in compliance with RFP General Instruction No. 15. Portions of the information are highly sensitive and will be made available only after execution of a certification to be bound by the draft protective order set forth in Section VII of this Rate Filing Package or a protective order issued in this docket.

Additionally, in accordance with RFP General Instruction No. 12(c), below is a list of the files that are being provided electronically:

Testimony Workpapers/Greer

WP_Greer – Greer Direct Workpapers.pdf

Testimony Workpapers/Highly Sensitive Confidential/Greer

Greer Testimony WP – Greer Direct Highly Sensitive Confidential Workpaper.pdf

Dates	Training	Description
Ongoing throughout timeline	Frequent System Testing	Primary and backup communication and IT systems
~~Oct 24, 2019~~	~~Winter Storm Drill~~	
May 11, 2020 - June 15, 2020	Summer Preparedness Training	Knowledge-based training on ERCOT Energy Emergency Alerts (EEA) and Load Shed for TGO, EDOC and WDOC
May 31, 2020	System Emergency Operating Procedures (SEOPM) updated	Emergency Preparedness Plan that matches the utilization of available resources to varying degrees of emergencies
Aug 12,2020	Oncor's Emergency Response Plan updated	
Aug 16 - 18, 2020	Oncor System Emergency Center (SEC) activated for DFW storm restoration	~~DFW storm restoration~~
September 16, 2020	Dallas Network and Fort Worth Network Clearance Drills	Tests the procedures and plans in place to recover from a network outage (e.g. multi feeder lockout, loss of transformer, failure to transfer load).
October 12, 2020 – November 16, 2020	Short Supply Training, Black Start Training and Backup Control Center Activation and Emergency Diesel Drill	**Short Supply:** In-depth knowledge and simulation-based training on EEAs, voltage reduction and load shed for TGO, EDOC and WDOC **Black Start Training:** In-depth knowledge and simulation-based training on Black-Start for TGO, EDOC and WDOC **Backup Control Center Activation/Emergency Diesel Drill:** In-depth knowledge and drill-based training on activating Backup Control Center and emergency diesel generator for TGOERCOT Black Start Training

November 21, 2020	System Emergency Operating Procedures (SEOPM) updated	Emergency Preparedness Plan that matches the utilization of available resources to varying degrees of emergencies
December 2, 2020	Activation of Oncor's Winter Readiness Checklist	Infrared inspections and other actions to prepare for cold weather season
February 8, 2021	~~IBM weather reports~~ Detailed weather briefings initiated in advance for Winter Storm Uri	In-depth analysis of weather forecast
February ~~11 – 22~~, 14, 2021	Oncor SEC activated in advance for Winter Storm Uri	~~Winter storm restoration. Resources Requested, Acquired, Staging Sites Established, Resources Arrive~~
February 12, 2021	Oncor requests additional ~~Distribution~~ restoration resources in advance of Winter Storm Uri	~~Distribution~~ Restoration resources requested through Southeastern Electric Exchange (SEE) Regional Mutual Assistance Group (RMAG) Event
February 13-14, 2021	Material Staging Sites identified and ~~set up for Winter Storm Uri~~ established	
February 15 – 22, 2021	SEC Fully Operational	Managing frequent update calls, expedited material management, and additional Vegetation Management and Construction Service resources
~~May 10, 2021 – June 14, 2021~~	~~Summer Preparedness Training~~	
~~June 15, 2021~~	~~System Emergency Operating Procedures (SEOPM) updated~~	~~Emergency Preparedness Plan that matches the utilization of available resources to varying degrees of emergencies~~
~~September 23, 2021~~	~~Dallas Network Clearance Drill~~	~~Tests the procedures and plans in place to recover from a network outage (e.g. multi feeder lockout, loss of transformer, failure to transfer load).~~
~~September 8-9, 2021~~	~~ERCOT Severe Weather Drill~~	~~ERCOT hosted drill for TGO covering various severe weather-related grid conditions~~
~~September 8, 2021~~	~~Oncor's Emergency Response Plan updated~~	
~~September 29, 2021~~	~~Oncor major storm drill~~	

October 1, 2021	Fort Worth Network Clearance Call	Tests the procedures and plans in place to recover from a network outage e.g. multi feeder lockout, loss of transformer, failure to transfer load.
October 11, 2021 – November 15, 2021	Short Supply Training, Black Start Training and Backup Control Center Activation and Emergency Diesel Drill	
December 21, 2021	SEOPM Plan Update	
January 31, 2022	IBM Weather reports initiated	In-depth analysis of weather forecast
January 31, 2022	Oncor requests additional Distribution resources in advance of Winter Storm Landon	Distribution resources requested through S.F.E. RMAG Event
February 2, 2022	Oncor SEC activated for Winter Storm Landon	

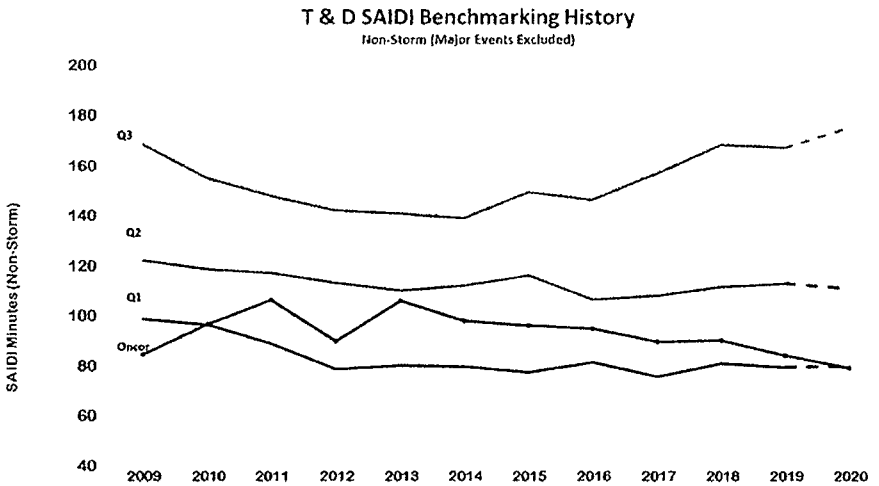
** On the definitions in the top left, the 3rd definition should end with ' . diesel generator for TGO '
Delete ERCOT black start training

	Median	1st Quartile	Oncor
2015	0.44	0.28	0.08
2016	0.38	0.28	0.08
2017	0.47	0.31	0.07
2018	0.46	0.21	0.10
2019	0.50	0.37	0.22

Chart title — Safety Performance
Chart Content — T&D Lost Time Incidence Rate

Feeder Reliability

Year	Feeder Count	Repeat Feeders	Good	%Repeat	Compliant Feeders
2016	2998	49	2949	1.6%	98.4%
2017	3027	44	2983	1.5%	98.5%
2018	2996	37	2959	1.2%	98.8%
2019	3089	43	3046	1.4%	98.6%
2020	3135	25	3110	0.8%	99.2%



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Top Quartile	99	96	89	79	80	80	77	81	76	81	79	80
2nd Quartile	122	118	117	113	110	112	116	107	108	111	113	111
3rd Quartile	169	155	148	142	141	139	149	147	157	168	167	175
Oncor	85	97	106	90	106	98	96	95	90	90	84	79

Safety Performance - LTI:
2020 Industry median: 0.36
2020 Industry 1st quartile: 0.18
2021 Oncor: 0.08

Safety Performance - DART:
2020 Industry median: 0.61
2020 Industry 1st quartile: 0.28
2021 Oncor: 0.38

Reliability Performance:
2020 Industry 3rd Quartile: 161
2020 Industry 2nd Quartile: 102
2020 Industry Top Quartile: 76
2021 Oncor: 78

Feeder Reliability:
2021 Repeat Feeders: 24
2021 Compliant Feeders: 99.2%

Operational Cost Per MWh Delivered

	Median	1st Quartile	Oncor
2016	$ 137.35	$ 103.49	$ 93.00
2017	$ 126.92	$ 96.38	$ 91.47
2018	$ 143.94	$ 105.02	$ 100.87
2019	$ 132.30	$ 109.87	$ 105.30
2020	$ 135.15	$ 109.48	$ 109.64
2021			$ 113.67

Operational Cost Per Customer

	Median	1st Quartile	Oncor
2016	$ 4.84	$ 3.72	$ 2.74
2017	$ 5.19	$ 3.58	$ 2.72
2018	$ 5.21	$ 3.71	$ 2.79
2019	$ 5.40	$ 4.50	$ 2.89
2020	$ 5.69	$ 4.62	$ 3.14
2021			$ 3.19

INDEX TO THE DIRECT TESTIMONY
OF WESLEY R. SPEED, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC

DIRECT TESTIMONY OF WESLEY R. SPEED

I. POSITION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT EMPLOYMENT POSITION.

A. My name is Wesley R. Speed. My business address is 1616 Woodall Rodgers Freeway, Dallas, Texas 75202. I am currently the Vice President of Transmission for Oncor Electric Delivery Company LLC ("Oncor" or "Company").

Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I am responsible for Oncor's design, construction, maintenance, and field operation of its high voltage electric transmission system and related substations. This includes Oncor's Transmission Engineering, Transmission Operations, System Protection, and Transmission Program Management Office organizations.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor of Science degree in Electrical Engineering from Texas A&M University, and have held various roles at Oncor and its predecessor over the course of my career, including Region Support Manager for the Southeast Region Transmission organization, Relay Support Manager for the System Protection group, Manager of the Dallas Transmission work center, Director of System Protection, and Senior Director of Asset Management. I served as Oncor's operations lead for Oncor's portion of the Competitive Renewable Energy Zone ("CREZ") transmission program, which included the siting and construction of over 1,000 miles of 345 kilovolt ("kV") transmission lines over a five-year period. I assumed my current position in early 2010 where I have continued my responsibilities over Transmission.

I am a Professional Engineer in the State of Texas (License Number 80684), have recently served on the Board of Directors for the North American Transmission Forum, and am an active member of the Institute of Electrical and Electronics Engineers.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS ("COMMISSION")?

A. Yes. I have submitted testimony in Docket Nos. 35665, 35717, 38929, 46957, and 48929.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to:

- provide an overview of Oncor's transmission facilities and operations;
- describe the Transmission organization within Oncor;
- present the Company's transmission capital investment at the end of the test year period ending December 31, 2021 ("Test Year") and support the reasonableness, necessity, and used and useful nature of Oncor's and Oncor Electric Delivery Company NTU LLC's ("Oncor NTU's") transmission capital investment;
- describe the categories of transmission projects that are included in Oncor's invested capital and explain why each category of projects is necessary for Oncor to provide service to the public;
- provide an overview of key acquisitions and initiatives undertaken by Oncor to ensure continued safe, reliable, and cost-effective electric delivery service amid a period of rapid development and increased demand;

- describe Oncor's transmission operation and maintenance ("O&M") activities and demonstrate how such expenses are reasonable and necessary;
- describe how the Company manages its transmission materials and supplies inventory, including investment in capital transformer spares and mobile substations, explain why it is reasonable and necessary, and explain why the transmission portion of the Company's 13-month average balance of such inventory should be included in rates;
- describe the Company's Electric Plant Held for Future Use ("EPHFU") and the amounts that are requested for inclusion in Oncor's rate base and explain why such plant is reasonable and necessary, benefits customers, and should be included in rates; and
- support Schedule M, which is being submitted as part of the rate-filing package ("RFP").

Q. DO YOU SPONSOR ANY EXHIBITS SUBMITTED BY ONCOR IN THIS PROCEEDING?

A. Yes, I sponsor Exhibits WRS-1 through WRS-6 that are attached to my testimony. These exhibits and this direct testimony were prepared by me or under my direction, supervision, or control, and are, to the best of my knowledge and belief, true and correct. My direct testimony is organized consistent with the topics set forth above.

Q. DO YOU SPONSOR ANY SCHEDULES IN THE RFP SUBMITTED BY ONCOR IN THIS PROCEEDING?

A. Yes. I sponsor Schedule M, and I co-sponsor Schedule II-B-6.

III. ONCOR'S TRANSMISSION SYSTEM AND ORGANIZATION

A. Transmission System

Q. PLEASE GENERALLY DESCRIBE ONCOR'S TRANSMISSION SYSTEM.

A. As of December 31, 2021, Oncor operated and maintained over 18,100 circuit miles of 345 kV, 138 kV, and 69 kV transmission lines and supporting structures and more than 1,100 substations and switching stations. This includes assets owned by Oncor and Oncor NTU. See Figures 4 and 5 below for visual depictions of Oncor's total circuit miles of transmission lines and total station capacity each year since Oncor's last base-rate case.

B. Organizational Structure

Q. PLEASE DESCRIBE ONCOR'S TRANSMISSION ORGANIZATION.

A. Oncor employs highly skilled individuals who perform a variety of transmission services from planning to operations. The Transmission organization reports directly to me. The organization employs approximately 913 full-time employees, accounting for $100.3 million in annual expenditures for wages and salaries, and comprises the following groups:

- Transmission Engineering;
- System Protection;
- Transmission Operations; and
- Transmission Program Management Office.

A list of these groups, their functions, and leadership is detailed in my Exhibit WRS-1. Figure 1 below shows the salaries and wages of Oncor's Transmission Organization relative to investment in Oncor's transmission system since Oncor's last base-rate case.

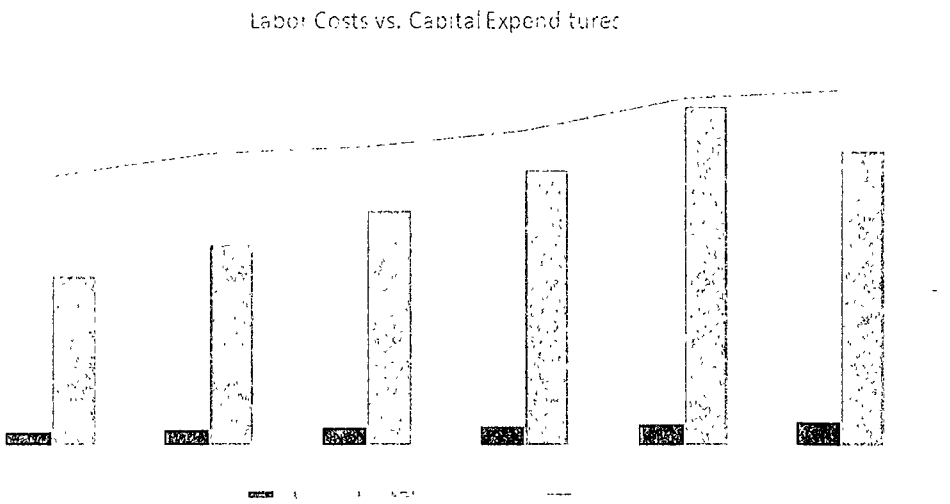


Figure 1: Labor and Capital Expenditures 2016-2021

Q. ARE THERE OTHER GROUPS THAT DO NOT REPORT DIRECTLY TO YOU THAT PROVIDE TRANSMISSION FUNCTIONS?

A. Yes. These include:

- Asset Planning;
- Transmission Grid Operations ("TGO");
- Transmission & Distribution Services ("T&D Services");
- Environmental and North American Electric Reliability Corporation ("NERC") Compliance; and
- Transmission Services.

I more fully describe these groups, their leadership, and their functions related to Oncor's transmission facilities and operations in Exhibit WRS-1. These groups are also discussed in the direct testimonies of Company witnesses Mr. Collin M. Martin and Ms. Ellen E. Buck.

Q. WHAT OTHER GROUPS PROVIDE SERVICES TO ONCOR'S TRANSMISSION AND DISTRIBUTION ("T&D") FUNCTIONS?

A. Performance Management, Engineering Standards and Maintenance Strategy, System Planning, Supply Chain and Sourcing, and the Technology Group each provide services to both the T&D functions of the Company. I describe the functions of these groups in Exhibit WRS-1.

IV. DESCRIPTION OF ONCOR'S TRANSMISSION CAPITAL INVESTMENT

A. Amount of Capital Investment

Q. HOW MUCH HAS ONCOR INVESTED IN ITS TRANSMISSION SYSTEM SINCE THE TEST YEAR FOR ITS LAST BASE-RATE CASE?

A. Oncor has invested approximately $5.37 billion in transmission facilities and load-serving substations since December 31, 2016, the end of the test year for Oncor's last base-rate case (Docket No. 46957), and all of Oncor's transmission capital investments are used and useful in providing electric service to the public. The chart in Figure 2 below shows Oncor's annual investment in its transmission system since its last rate case.

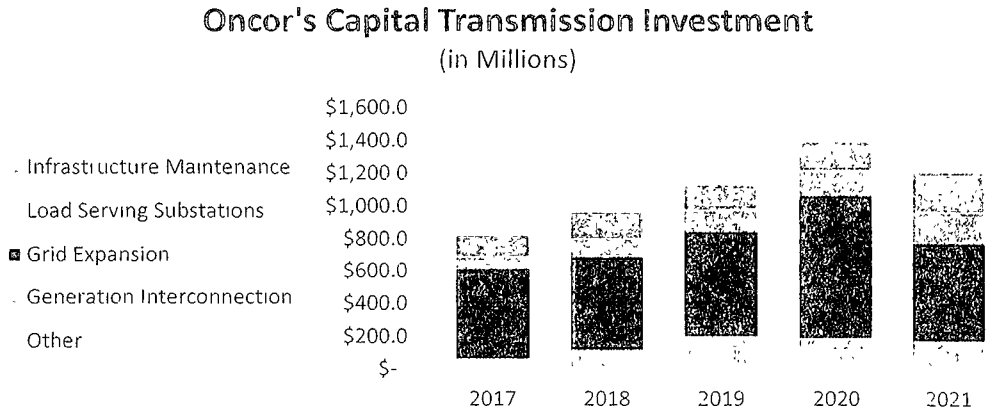


Figure 2 Transmission Capital Investment 2017-2021

Q. IN ADDITION TO INVESTMENTS IN THE ONCOR SYSTEM, WHAT OTHER TRANSMISSION INVESTMENTS IS ONCOR SEEKING TO RECOVER?

A. Oncor is also seeking recovery for approximately $1.623 billion in capital investments for assets that were previously held by Sharyland Utilities, L.P.

("Sharyland") and Sharyland Distribution & Transmission Services, L.L.C. ("SDTS") and that were obtained through Oncor's acquisition of InfraREIT, Inc. ("InfraREIT"). These assets are now owned by Oncor NTU pursuant to the transactions approved by the Commission in Docket No. 48929. These assets are used and useful, prudent investments that benefit the transmission grid. I describe these assets and transactions in greater detail below.

B. Goals and Objectives of Transmission Investment

Q. WHAT ARE ONCOR'S OBJECTIVES WITH REGARD TO TRANSMISSION CAPITAL INVESTMENTS?

A. Oncor's objectives regarding capital investment are to invest capital dollars to serve Oncor's rapidly growing customer base in a safe, reliable, and cost-effective manner and to support the market of the Electric Reliability Council of Texas ("ERCOT"). In support of this objective, Oncor makes investments that are necessary to fulfill its mandates under its tariffs, the Public Utility Regulatory Act ("PURA"), the Commission's Substantive Rules, and other applicable regulatory requirements, such as directly interconnecting power generation facilities and meeting reliability criteria. Oncor also makes necessary investments to mitigate intrazonal (local) and zonal congestion.

C. Drivers of Transmission Investment

Q. WHAT DRIVES THE NEED FOR TRANSMISSION INVESTMENT?

A. There is no single answer to this question. The ERCOT grid is dynamic and constantly changing. Oncor's system, as part of the ERCOT grid, must continually adapt to meet the needs of the state and its growing economy. Catalysts for new transmission investment may be the addition or retirement of generation, new load in a specific location or across a general area, industry developments, changing power quality requirements, or the general flow patterns for power across the ERCOT system. Additional investment in existing transmission infrastructure can be driven by the need for capital

maintenance, system hardening, regulatory initiatives, and a host of other factors. Continual study of and investment in the transmission system is essential to a reliable and functional electric grid.

Q. PLEASE DESCRIBE THE KEY DRIVERS OF ONCOR'S TRANSMISSION CAPITAL INVESTMENT SINCE DECEMBER 31, 2016.

A. While each of the general drivers I mention above has played a role in Oncor's transmission investment over the past few years, there are also unique drivers that deserve mention.

The dramatic load growth in west Texas is a good place to start. Over the last several years, the oil and gas industry's electric demand in far west Texas has been unprecedented. From 2017 through 2021, load in the ERCOT far west weather zone increased significantly. This load growth resulted from many factors, including new oil and gas technology, discovery of new shale plays with low breakeven price points for developers, geopolitical events, and numerous other factors. The confluence of these events created a dramatic increase in the demand for reliable power, particularly in the Permian and Delaware basins. Historically, these areas had been served by long-distance 69 kV and 138 kV radial transmission lines. As the industry's demand accelerated, it became clear that a substantial system upgrade and new 345 kV transmission sources were necessary to feed west Texas. Oncor, ERCOT, and other transmission service providers ("TSPs") worked together to study the situation and plan appropriate actions to provide reliable service to these crucial Texas industries. Although oil and gas operations temporarily declined in early 2020 due to the effects of the COVID-19 pandemic on that industry, those operations in west Texas appear to have largely recovered and even surpassed their pre-COVID levels.

Second, Texas has experienced an influx of businesses that have relocated their operations, corporate headquarters, manufacturing facilities,

and data centers to the state. Oncor saw a 55% increase in retail requests for transmission-level service from 2020 to 2021. This influx has driven a significant increase in electric demand. This is in addition to the increased demand due to Texas' overall population growth that has occurred since Oncor's last base-rate case. To meet this demand, Oncor has made significant capital investments to upgrade existing facilities and build new facilities where they are needed.

Finally, a significant amount of new generation projects has driven a corresponding increase in Oncor's generation interconnections and required investments in new and upgraded facilities to deliver the power. In 2021, Oncor received approximately 16,500 megawatts ("MW") of new generation interconnection requests. Combined with existing requests, Oncor is now actively working to connect more than 50,000 MW of new generation capacity to the ERCOT system. This new generation interconnected to Oncor's transmission system will improve generation reserve margins and facilitate wholesale competition in the ERCOT market.

D. Investment Categories

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S TRANSMISSION INVESTMENT IN GENERAL AND THE TRANSMISSION FACILITIES ONCOR HAS ADDED SINCE DECEMBER 31, 2016.

A. Figures 3 and 4 below indicate Oncor's total circuit miles of transmission lines and total substation capacity, respectively. These figures focus on Oncor's investments since Oncor's last test year, 2016, and demonstrate how those investments are used and useful as part of the transmission grid that serves

ERCOT today.

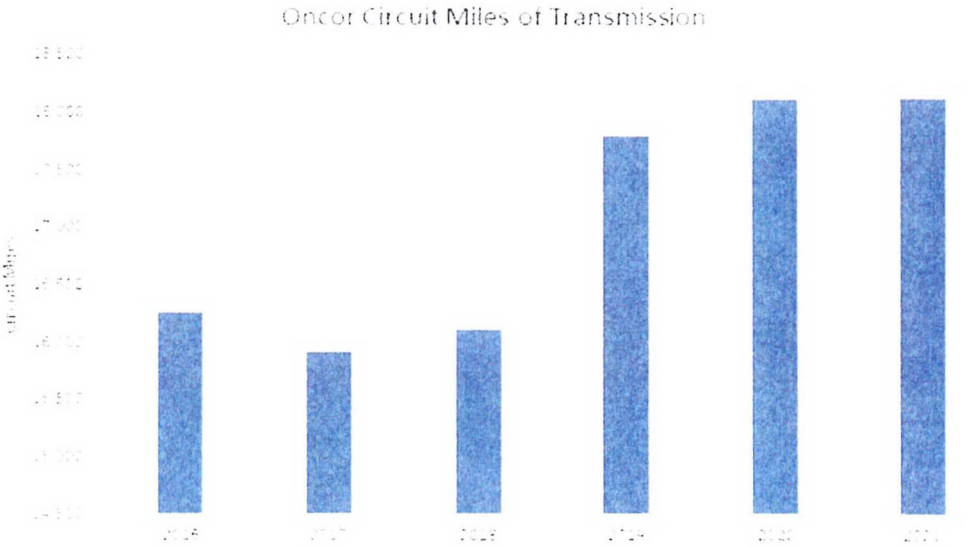


Figure 3: Circuit Miles of Transmission Lines 2016-2021

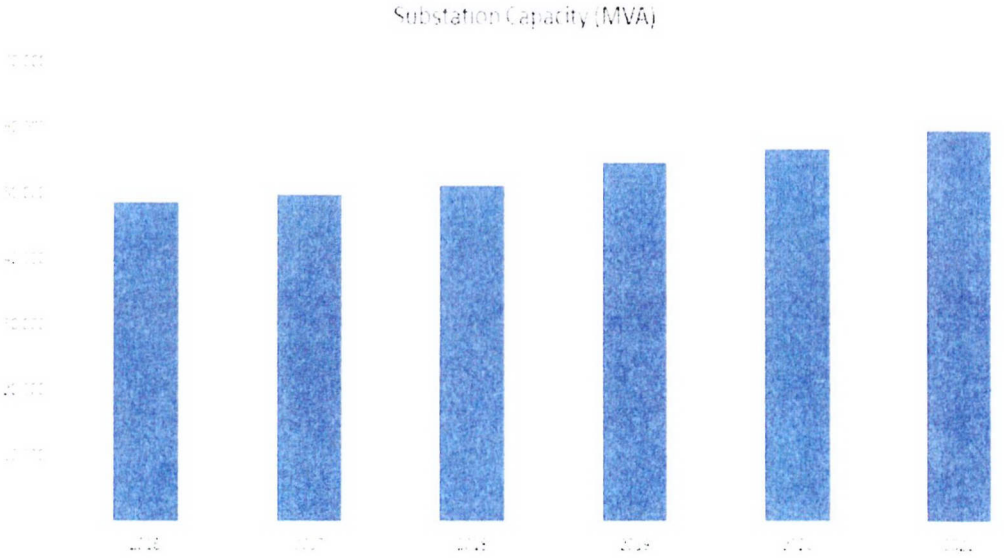


Figure 4: Total Substation Capacity 2016-2021

Q. PLEASE DESCRIBE THE INVESTMENT CATEGORIES FOR PROJECTS THAT ARE INCLUDED IN ONCOR'S INVESTED CAPITAL.

A. Oncor's transmission capital investment includes (i) traditional transmission projects, (ii) investment related to Oncor's 2019 acquisition of InfraREIT, (iii) acquisition of certain assets previously owned by Sharyland and SDTS, including investment related to the 2014 acquisition by SDTS of certain T&D assets from Southwestern Public Service Company ("SPS"), and (iv) a number of other initiatives to transform Oncor's transmission system into a modern grid, make operations more efficient, and enhance Oncor's ability to provide safe, reliable power to Texas consumers. These categories are further described below.

1. Traditional Transmission Projects

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF ONCOR'S TRADITIONAL INVESTMENT CATEGORIES.

A. Oncor's traditional transmission capital expenditures that are included in Oncor's invested capital are as follows: Generation Interconnections; Grid Expansion; Load-Serving Substations; Infrastructure Maintenance; and Other. Projects in these categories are implemented by Oncor to provide safe, reliable, and cost-effective electric delivery service to the public consistent with PURA, the Commission's Substantive Rules, the Company's tariffs, and other applicable regulatory requirements.

Generation Interconnection projects are projects to connect generation resources to the transmission grid. Interconnecting generation commonly includes the need to construct transmission line and substation assets to physically and reliably connect the generation to the electrical grid. Any transmission facility loading issues that may be caused by, or necessary for, the subsequent interconnection of a generation project are generally funded within the Grid Expansion category of capital work.

Grid Expansion projects commonly include investment in new transmission lines, rebuilding or reconductoring existing transmission lines to increase capacity, and/or new bulk power switching stations and additions to such stations. Grid expansion projects are generally identified by the Transmission Planning group (within the System Planning organization) through its planning processes, including its coordinated work with ERCOT. In general, the needs for projects are supported by the NERC Transmission Planning guidelines, Oncor planning guidelines, and ERCOT protocols that identify loading, voltage, stability thresholds, and planning criteria. Funding and completion of grid expansion projects enable Oncor to contribute to the continued reliable operation of the ERCOT transmission system.

The Load-Serving Substations category of project investment refers to the transmission and load-serving substation capital investment associated with serving new customer load and the necessary reactive support for load across the Oncor system. Necessary load-service investment is identified through distribution planning processes as conducted by the Distribution Planning group (within the System Planning organization). Substation assets that are exceeding—or could exceed—normal operating reliability criteria, including load or voltage capacities, are identified, and projects are completed to relieve or prevent capacity deficiencies. The funding and completion of these types of projects are required for Oncor to respond to the ongoing escalation of load growth across the Oncor system and the direct provision of continued reliable service to Oncor customers.

The Infrastructure Maintenance category includes planned and reactive capital maintenance of existing facilities. This includes investment in programs, such as planned substation projects (breaker, switch, and switchgear replacements) and the transmission line capital maintenance

program. Infrastructure Maintenance also includes investments in new technologies such as microprocessor-controlled substation relay panels as a replacement for electromechanical relay protection, communication improvements to substations (*e.g.*, fiber optic cable in shield wire), and monitoring technology (*e.g.*, online transformer oil diagnostics). Funding for storms and equipment failures is also included in this investment category.

The "Other" category includes capital costs for line and equipment relocations and points of interconnection to provide service to customers and, at times, other utilities.

Please see Figure 2 above for an illustration of Oncor's traditional transmission investment that I have described and categorized above. Oncor's investment in all of the foregoing categories is necessary for Oncor to continue to provide adequate and reliable service to the public and to support the growing Texas economy.

Q. PLEASE DESCRIBE IN MORE DETAIL ONCOR'S CAPITAL MAINTENANCE EXPENDITURES AND EXPLAIN WHY THEY ARE NEEDED.

A. The Company makes these capital investments to maintain reliability. Some examples of investment in capital maintenance that Oncor has made for reliability include the replacement of high- and medium-voltage switches, circuit breakers, switchgear, surge arrestors, system protection equipment, batteries and chargers, transformer components, remote telemetry units ("RTUs"), and wood poles when needed. Another example of investment in capital maintenance is the replacement of aging oil-filled and electromechanical equipment with new technologies. Capital maintenance also includes the upgrading of telecommunication facilities to improve Oncor's ability to remotely monitor substations. Oncor's Telecommunications Refresh Program ("TRP") project is one such project and is discussed in detail in the direct testimonies of Oncor witnesses Mr. Joel S. Austin, Ms. Malia A. Hodges,

and Mr. Collin M. Martin. These types of investments are necessary for Oncor to maintain reliability and fulfill its statutory and regulatory responsibilities as an electric utility.

2. InfraREIT Acquisition

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF ONCOR'S ACQUISITION OF ASSETS IN THE INFRAREIT ACQUISITION.

A. In 2019, in Docket No. 48929, the Commission approved a series of transactions involving Oncor, Oncor's indirect majority owner, Sempra Energy ("Sempra"), Sharyland, and SDTS, which, among other things, resulted in (i) Oncor's taking ownership of transmission assets in central, north, and west Texas previously owned by Sharyland and SDTS, by acquiring SDTS as an indirect, wholly-owned subsidiary of Oncor ("InfraREIT Acquisition"), and (ii) Sharyland retaining ownership of T&D assets in south Texas and becoming indirectly co-owned by Sempra and a Sharyland affiliate. Through the InfraREIT Acquisition, Oncor combined its system and the acquired systems into one cohesive whole. The acquired assets are now owned by Oncor NTU and operated by Oncor. Sharyland Utilities, L.P. became Sharyland Utilities, L.L.C. (also to be referred to as "Sharyland"). Sharyland retained ownership of its transmission assets in south Texas, but Oncor assumed responsibility for providing certain services for the assets retained by Sharyland, including operations services, direct current ("DC") tie operations services, ERCOT-Polled Settlement ("EPS") metering services, and wholesale metering services. The services provided by Oncor to Sharyland are described in greater detail in the direct testimony of Oncor witness Mr. Martin.

Q. PLEASE DESCRIBE THE ASSETS INVOLVED IN THE INFRAREIT ACQUISITION.

A. Oncor acquired 100% of the equity of SDTS's and Sharyland's parent entity, InfraREIT. Through the InfraREIT Acquisition, Oncor also acquired four discrete groups of assets: (1) the CREZ assets that Oncor designed and constructed, but then divested to SDTS as part of a 2017 asset exchange approved by the Commission in Docket No. 47469; (2) SDTS's CREZ system in the Texas Panhandle; (3) Sharyland's Golden Spread and Lubbock Power & Light ("LP&L") interconnection projects; and (4) SDTS's west Texas system (together, the "Oncor NTU Assets"). Each of these groups of assets were either adjacent to or near existing Oncor transmission facilities, making them compatible with Oncor's transmission footprint.

Q. HOW IS THE INFRAREIT ACQUISITION RELEVANT TO THIS RATE CASE?

A. While the Commission found the CREZ assets that were part of the asset exchange with SDTS to be prudent, the Oncor NTU Assets that Sharyland or SDTS put into service after January 1, 2013, have not received a prudency review. All of these assets are used and useful as necessary components of the Oncor transmission system and are submitted for a full prudence review in this rate case. Oncor witness Mr. Joseph B. Nichols addresses the prudence and cost reasonableness of a certain subset of these Oncor NTU Assets and I sponsor the prudence and reasonableness of the remainder. Primarily, I sponsor the Oncor NTU Assets associated with a Commission-approved certificate of convenience and necessity ("CCN") for Sharyland's construction of the assets.

Q. PLEASE EXPAND ON THE BENEFITS OF ONCOR'S INTEGRATED OPERATION OF THE ONCOR NTU ASSETS.

A. From a transmission operations standpoint, there are many benefits to Oncor's integrated operation of the Oncor NTU Assets. First, Oncor has a long and established track record of providing reliable, cost-effective electric service in the State of Texas. Oncor's integrated operation of the Oncor NTU

Assets increased the number of electric facilities managed, operated, and controlled with Oncor's industry-leading standards and practices.

Second, integration of the acquired facilities and operations into Oncor's existing control room and field operations organization has simplified operational interfaces, resulting in more efficient and reliable grid operations. The benefits of operating and maintaining the Oncor NTU Assets and legacy Oncor assets as a single integrated system include the reduction of operational complexities and inefficiencies associated with highly interconnected grid locations. The systems have now been fully integrated, which has simplified and improved a number of operational characteristics, including grid visibility, outage coordination, service restoration, system protection, and maintenance, among others. Further, as part of the transactions in Docket No. 48929, Oncor committed to: (i) provide its customers with wholesale-transmission-service rate credits with respect to interest savings and merger savings; (ii) hold harmless customers from certain costs associated with the transactions; and (iii) not seek recovery of certain fees, expenses, and regulatory assets resulting from the transaction, among other commitments that benefited Oncor's customers.

Third, Oncor's integrated operation of the Oncor NTU Assets has expanded the geographic areas of Texas that are electrically planned as a cohesive whole. When I use the word "plan" in this sense, I am referring to the planning of the electrical grid and the infrastructure necessary to serve its ever-changing needs. This is a sizable task that requires Oncor employees to look many years into the future and anticipate and prepare for the needs of the grid. With the Oncor NTU Assets having been integrated into Oncor's system, the Oncor planning department is now responsible for creating cohesive plans for both Oncor's legacy system and the Oncor NTU Assets.

Finally, inclusion of the Oncor NTU Assets in the Oncor planning process is allowing Oncor's transmission grid planners to take a holistic view of all transmission assets in the west Texas area and provide cohesive solutions to both the transmission grid and load-serving assets for the entire area, providing more comprehensive and beneficial transmission solutions over time.

Q. PLEASE PROVIDE AN OVERVIEW OF THE LUBBOCK POWER & LIGHT ("LP&L") INTEGRATION PROJECTS.

A. The LP&L Integration Projects were a complex series of projects to interconnect 470 MW of the load served by LP&L in the City of Lubbock area to the ERCOT grid. The Commission approved and found these projects to be in the public interest in Docket No. 47576. The order in that docket required the facilities to be in service by June 1, 2021, at which time LP&L's power supply contract was set to expire. The order designated Sharyland and LP&L as the entities that would develop the LP&L Integration Projects, which they would own in equal parts.

After the Commission approved the InfraREIT Acquisition, Oncor assumed ownership of Sharyland's interest in the LP&L Integration Projects, including responsibility for the engineering, design, right-of-way ("ROW") acquisition, material procurement, and construction of the facilities required for the integration. At this time, Sharyland had applied for the required CCN amendments, but those proceedings were still pending before the Commission. As Sharyland's successor-in-interest, Oncor intervened in the pending CCN proceedings and assumed Sharyland's role as the applicant.

Each project that comprises the LP&L Integration Projects was necessary to facilitate the Commission-approved plan to integrate the City of Lubbock load into ERCOT. The Commission affirmed the need for the overall

LP&L Integration Project in Docket No. 47576 and for the component projects independently in Docket Nos. 48625, 48668, 48909, and 49151.

Altogether, the LP&L Integration Projects included construction of approximately 180 miles of new transmission line, two new switching stations, and station work at four other stations, including the addition of new 115- and/or 345-kV switchyards. The total estimated costs for these facilities as approved by the Commission was approximately $385 million. The cost of the project was divided between Oncor and LP&L in proportion to their respective ownership percentages.

Q. WHAT IS THE STATUS OF THE LP&L INTEGRATION PROJECTS?

A. Despite the unique challenges Oncor faced in assuming responsibility for these projects mid-flight, Oncor successfully completed the LP&L Integration Projects on schedule and placed them into service on June 1, 2021. Those projects now supply power to businesses and residences in the City of Lubbock and through them, the City of Lubbock has been integrated into ERCOT.

Q. ARE THE COSTS ASSOCIATED WITH THE LP&L INTEGRATION PROJECTS REASONABLE AND NECESSARY?

A. Yes. The total estimated costs for the LP&L Integration Projects as approved by the Commission were approximately $385 million. The total project cost as of December 31, 2021 came in well below the estimates at approximately $360 million, of which Oncor's share was approximately $188 million. In her direct testimony, Oncor witness Ms. Buck describes Oncor's robust system of cost controls, which helped to ensure that Oncor's costs for the materials and labor needed for these projects were reasonable. As I previously mentioned, the Commission has deemed these projects to be in the public interest.

3. SPS Acquisition and Assets

Q. PLEASE DESCRIBE THE TRANSMISSION ASSETS THAT SHARYLAND AND SDTS ACQUIRED FROM SPS PRIOR TO ONCOR'S ACQUISITION OF THESE ASSETS IN THE INFRAREIT ACQUISITION.

A. In 2014, SDTS purchased approximately 66 miles of transmission lines and associated facilities from SPS for $37,117,614. These assets included the Hobbs – Midland and Grassland – Borden transmission lines, the Midland County and Borden County stations, and the land and land rights associated with these assets. As part of this transaction, Sharyland acquired the CCN rights associated with these facilities. Following the transaction, Sharyland operated the facilities under lease from SDTS.

Q. PLEASE DESCRIBE THE REGULATORY PROCEEDINGS BEFORE THE COMMISSION RELATING TO SHARYLAND AND SDTS' ACQUISITION OF THESE ASSETS FROM SPS.

A. In 2013, in Docket No. 41430, Sharyland, SDTS, and SPS filed an application with the Commission for approval of the asset sale, the transfer of associated CCN rights, and the proposed accounting treatment associated with the transaction. In that docket, the Commission approved the transfer of these facilities under PURA § 14.101 and the transfer of their associated CCN rights under PURA § 37.154. The Commission also approved the proposed accounting treatment of the assets.

Sharyland's subsequent base-rate case filing in Docket No. 45414, as amended, presented multiple pieces of testimony regarding its proposed inclusion of the acquisition adjustment in its rates. In that case, Mr. Ralph Goodlet, Mr. Mark Meyer, and Ms. Ellen Blumenthal each presented direct testimony on the issues, and Mr. Goodlet and Mr. William Bojorquez presented rebuttal testimony on the issue. Relevant excerpts from these testimonies and their attachments are included as Exhibits WRS-2 through WRS-6 to my direct testimony. However, the Commission did not make a final

determination regarding the issues because it dismissed that base-rate proceeding based on a settlement relating to subsequent transactions involving Sharyland, SDTS, and Oncor that affected these assets. The discussion on this issue that follows relies in part on the Commission's final order in Docket No. 41430, the materials cited in that order, and Exhibits WRS-2 through WRS-6 attached to my testimony.

The accounting treatment and proposed recovery of the acquisition adjustment associated with the SPS acquisition is addressed in the direct testimony of Oncor witness Mr. W. Alan Ledbetter.

Q. WHY DID SDTS PURCHASE THESE ASSETS FROM SPS?

A. As the Commission's final order in Docket No. 41430 explains, SDTS purchased these facilities to save customers the much higher costs of constructing new transmission lines that would otherwise have been necessary if SDTS had not purchased these assets from SPS. These transmission lines and substations provided, and continue to provide, reliable power that ultimately serves ERCOT customers.

Q. WHAT TRANSMISSION ASSETS WOULD HAVE BEEN CONSTRUCTED AND PAID FOR BY ERCOT CUSTOMERS IF SDTS HAD NOT PURCHASED THE SPS TRANSMISSION ASSETS FOR APPROXIMATELY $37 MILLION?

A. As reflected in the Commission's final order in Docket No. 41430, the Commission had prescribed new T&D facilities that would have needed to have been constructed by the end of 2013 to ensure reliable service to Sharyland's Stanton and Colorado City division customers. ERCOT had also conducted two studies identifying new transmission facilities that would have been needed if SDTS was unable to acquire these transmission lines from SPS. ERCOT's Northern Loop Project Study identified approximately $51.5 million in new transmission facilities, and ERCOT's West Texas Sensitivity Study identified approximately $75 million in new transmission facilities, that

would have been needed if SDTS had not purchased the two SPS transmission lines. Purchasing these two transmission lines and associated assets from SPS also obviated the need for Sharyland to construct the 10-mile Gardendale-Grady transmission line at an estimated cost of $8 million—the Commission had already approved Sharyland's CCN application for that line in Docket No. 40537. Collectively, approximately $135 million in new transmission facilities would have been necessary had SDTS not purchased the SPS transmission assets for approximately $37 million.

Q. WHAT OTHER REASONS EXISTED FOR SDTS TO PURCHASE THESE ASSETS FROM SPS?

A. In addition to the approximately $98 million in avoided costs, which resulted in net cost savings for ERCOT customers, the acquisition improved service reliability to Sharyland/SDTS retail customers and within ERCOT's West Zone more generally. The asset acquisition also ensured that no new transmission ROWs would be needed for the new projects that were obviated by Sharyland's acquisition, benefitting landowners and yielding environmental benefits through avoided construction activities. It also yielded reliability benefits through faster use of existing facilities rather than the slower in-service timeframe to certificate and construct new facilities. The Commission also found that the replacement value of the facilities SDTS purchased was approximately $99 million, which was almost $62 million more than the actual purchase price.

Q. HOW MUCH DID SDTS ULTIMATELY PAY FOR THESE SPS ASSETS?

A. The transaction closed for a purchase price of $37,117,614. The price reflected a gross plant value of $13,611,057, less accumulated depreciation of $5,829,829, for a net plant value of $7,781,228, resulting in an acquisition adjustment of $29,336,385, which is addressed in the direct testimony of Company witness Mr. Ledbetter.

Q. SHOULD THIS ACQUISITION ADJUSTMENT BE INCLUDED IN RATES?

A. Yes. The Commission has traditionally evaluated potential inclusion of acquisition adjustments in utility rates under a two-prong test, which asks: (1) whether or not the purchase price was excessive; and (2) whether or not specific and offsetting benefits have accrued to customers. The utility bears the burden of demonstrating a purchase price was reasonable and benefits accrued to customers. The Commission found the purchase price was reasonable under PURA § 14.101 in Docket No. 41430, and it should similarly find that such purchase price, with the acquisition adjustment, was reasonable in this case. Paying a $29 million premium to acquire and use existing facilities and avoid $135 million in costs to build new facilities was prudent and is reasonable in light of these significant cost savings and associated reliability benefits.

Moreover, the benefits accruing to both Southwest Power Pool and ERCOT customers are specific and more than offset the costs to customers. SPS shared over $5 million from the benefits of the acquisition premium it gained with its Texas retail customers as ordered by the Commission in Docket No. 41430 and subsequently recognized in SPS's refund authorization proceeding in Docket No. 45560. Therefore, ERCOT customers realized a net $98 million in overall transmission cost savings as a result of the transaction.

As explained above, the transaction also yielded environmental benefits by allowing use of existing facilities rather than construction of new facilities, a benefit that accrues to all Texas residents, including customers. Additionally, the transaction allowed use of those existing facilities to benefit nearby customers on a much faster timeline than construction of the new facilities would have permitted.

Oncor has also used this facility to serve new Texas load through extensions of service from the line. One example is the point of interconnection at the Gardendale Switch, which Oncor placed into service in October 2020.

Finally, allowing rate recovery of this acquisition adjustment will send a clear message that the Commission will continue to incentivize utilities to pursue creative solutions that offer specific benefits to customers. Recovery of this acquisition adjustment is reasonable and should be approved by the Commission.

4. Investments in Resiliency

Q. HAS ONCOR MADE INVESTMENTS TO STRENGTHEN THE RESILIENCE OF THE TRANSMISSION GRID?

A. Yes. Oncor is continually seeking opportunities to strengthen its transmission system and increase system resiliency through capital and O&M investments in system hardening and weatherization. As an example, following the severe winter storm in 2011, Oncor proactively began to implement weatherization recommendations from the resulting Federal Energy Regulatory Commission ("FERC")/NERC report. As a result, even with the unprecedented winter conditions experienced during Winter Storm Uri, Oncor's transmission system experienced only five cold weather critical component issues that caused a piece of transmission equipment to experience an outage in the winter of 2020-2021, all of which occurred during Winter Storm Uri. These included one autotransformer and four breaker operations out of 2,700 total breakers on Oncor's transmission system. While these minor component issues required short outages to allow for needed repairs, none of these events affected generation output or resulted in service outages for Oncor's customers.

Q. WHAT INVESTMENTS HAS ONCOR MADE TO WEATHERIZE ITS TRANSMISSION SYSTEM SINCE DECEMBER 31, 2016?

A. Oncor designs all new facilities to meet or exceed National Electric Safety Code ("NESC") requirements. In many cases, for example, with respect to structural strength, conductor clearances, and ice loading, Oncor's internal standards are more stringent than the applicable NESC standards.

Since December 31, 2016, Oncor has replaced many aging wood poles with stronger steel or concrete structures. Oncor conducts regular patrols and inspections of its transmission lines, including aerially inspecting its lines twice per year and conducting on-the-ground patrols at regular intervals that vary by structure type. Wooden transmission structures also receive specialized inspections on a periodic basis, depending on the weather region. Based on these comprehensive risk assessments, Oncor's Capital Maintenance Prioritization Committee annually reviews the state of Oncor's transmission system and approves proactive weather-related upgrades.

Since its last base-rate case, Oncor has invested approximately $180 million to modernize bus designs at its transmission-level switching stations and substations to create redundancy that provides Oncor the flexibility to conduct maintenance without taking the station out of service. Oncor also has plans to increase its capacity spend and system redundancy, beginning with updates to its workstream planning criteria to plan for greater range of contingencies that will help to ensure the system is able to operate in a wider range of conditions.

Additionally, Oncor maintains investments in capital spare substation transformers and mobile substation equipment, which allow for timely replacements and emergency restoration of service.

Finally, Oncor has recently updated its processes to ensure that its system, equipment, and maintenance practices are in compliance with the Commission's newly promulgated weatherization rules.

Q. WHAT ACTIONS HAS ONCOR TAKEN TO COMPLY WITH THE COMMISSION'S NEW WEATHERIZATION STANDARDS?

A. As part of its ongoing process improvements, Oncor previously ensured that its procedures were consistent with the 2011 FERC/NERC report. With the passage of the Commission's new weatherization standards in 16 Tex. Admin. Code § 25.55, Oncor has reviewed its internal processes and procedures and made necessary modifications to ensure full compliance with the new rule. Oncor has since conducted seasonal and situational preparedness inspections and readiness reviews of temperature-sensitive transmission equipment and facilities, including cold weather critical components within station fences. These preparations include Oncor's best efforts to prepare the cold weather critical components in its transmission system for severe winter weather. Generally, the cold weather critical components at a transmission level within a station fence include transmission-voltage breakers, autotransformers, emergency generators, and power transformers located within flexible alternating-current transmission system facilities. Prior to summer seasons and potentially severe seasonal weather conditions, Oncor conducts similar reviews and inspections, checking cooling components, including fans and pumps on transformers, to determine if any equipment needs to be repaired.

Oncor field personnel must verify that they have the necessary personal protective equipment to respond to system events, such as warm clothing and ice cleats. Also, vehicles are inspected for winter readiness and outfitted with ice scrapers and de-icing spray. Emergency generators at switching stations are checked for adequate fuel reserve and coolant,

antifreeze levels. Infrared thermographic inspections are performed on station equipment to quickly detect thermal issues. Stations are inspected to ensure that heaters, seals, insulation, batteries, oil levels and gas levels are functional and adequate for the winter season. These preparations have helped Oncor to maximize grid reliability during severe weather conditions.

Q. HAS ONCOR UNDERTAKEN ANY ADDITIONAL INVESTMENTS IN SYSTEM MAINTENANCE THAT HAVE STRENGTHENED ITS TRANSMISSION SYSTEM?

A. Yes. Specific investments that contributed to feeder breaker availability and the limited number of breaker operations during Winter Storm Uri and beyond include: Purchasing breakers with fewer moving parts and less reliance on pneumatic systems that can be impacted by extreme cold; conducting diagnostic tests to check the lubrication levels in operating mechanisms; and the creation of a proprietary breaker assessment tool, which uses data analytics to evaluate system conditions, giving Oncor clearer insight into the operation of its transmission system.

5. Other Initiatives

Q. HAS ONCOR UNDERTAKEN OTHER CAPITAL INVESTMENT PROJECTS SINCE DECEMBER 31, 2016?

A. Yes. I will provide a brief summary of some of Oncor's key investments below.

a. Technology Upgrades

Q. HAS ONCOR MADE CAPITAL INVESTMENTS IN TECHNOLOGY TO ENSURE SAFE, RELIABLE ELECTRIC DELIVERY?

A. Yes. One of Oncor's key points of focus since its last base-rate case has been implementing modern technologies in order to supplement the Company's expertise in linear infrastructure with state-of-the-art technology. To this end,

Oncor has engaged in several technology-focused initiatives, which I describe below:

- Far West Texas Dynamic Reactive Devices ("DRD") Project
  Oncor's investment in the ERCOT-endorsed Far West Texas DRD Project accelerated the reactive compensation piece of ERCOT's original recommendations to help meet the rapidly growing load in the Culberson Loop area in far west Texas. These investments are providing needed reactive compensation, thereby increasing reliability, providing additional load-serving capacity, supporting voltage conditions, and increasing operational flexibility. They also support ongoing system upgrades, as the need for DRDs remains even after the associated 345 kV facilities have gone into service.
- Transmission Management System ("TMS") Replacement
  Oncor has recently transitioned to a new TMS, which is the system Oncor uses to manage the remote operation of its transmission grid. This investment will eliminate limitations of the predecessor TMS, allowing Oncor to better monitor and expand its system while providing additional operational tools that will allow Oncor to better serve ERCOT and Oncor's customers. The TMS replacement is addressed in greater detail in the direct testimonies of Company witnesses Mr. Austin, Ms. Hodges, and Mr. Martin.
- The TRP Project
  Oncor has recently migrated its telecommunications infrastructure from aging copper-wire landlines operated by telecommunications companies to modern, Oncor-owned solutions. This effort involves adding long-haul and short-haul fiber connections and installing microwave, cellular, and radio installations at stations, among other improvements, to improve communications between Oncor's control

room and its facilities, allowing Oncor to better monitor the system. This increased visibility into Oncor's system provides Oncor with substantial additional control over its system. During Winter Storm Uri, that visibility better enabled Oncor to execute ERCOT's load-shedding and restoration directives. The TRP project is addressed more fully in the direct testimonies of Oncor witnesses Mr. Austin, Ms. Hodges, and Mr. Martin.

- PETE

"PETE" is the internal title for a project to consolidate the tools used for tracking various aspects of project development into one. The name is shorthand for a string of acronyms representing the various functions included in the tool. These include P.I.P. ("Project Information Portal"), E.M.T. ("Estimation and Material Tracking"), T.E.D. ("Transmission Engineering Database"), and "Everything Else." The overarching goal of PETE was to create a central tool to track every aspect of project development, from inception to placement in service. PETE combines estimating, planning, procurement, and scheduling aspects of projects into a single, unified tool. Before Oncor implemented the PETE tool, each of these activities was handled by various decentralized tools that tracked individual aspects of Oncor's projects separately. Unifying these applications into a single tool has allowed Oncor to retire the legacy systems while enhancing Oncor's ability to track and monitor project development. This enhanced capability has been crucial to Oncor's efforts to gather the project data required by Schedule M of the RFP.

- Geographic Information System ("GIS")

Oncor has recently built out a GIS to provide an interactive repository for Oncor's Transmission assets. The Oncor Transmission Information

System ("OTIS") is commonly used as a visual reference point across various departments within Oncor, including Engineering, Right-of-Way, and T&D Operations. From a Transmission Operations perspective, OTIS provides critical information regarding field resources, such as mapping possible fault locations to aid in restoration activities. OTIS includes aerial and line patrol modules, which provide a single application for Transmission Operations to visualize, track, address, and report issues. OTIS also provides Transmission Engineering with the ability to quickly visualize future transmission projects and identify potential constraints and other issues. This and other tools are simplifying the process of inspecting Oncor's transmission facilities, which in turn helps Oncor to satisfy its regulatory obligations, including the reporting requirements recently enacted as a part of House Bill 4150, 86th Leg., R.S., known as the William Thomas Heath Power Line Safety Act ("H.B. 4150").

- Inspections and Data Analytics

Oncor's Equipment Support group provides additional data based on its tracking of equipment performance, manufacturer support, and facility capabilities. This data can be used to make the condition-based maintenance program more effective, helping to identify with greater accuracy when and how often equipment in various asset classes needs to be maintained. This data can also guide the Strategic Sourcing group in its selection of vendors.

In 2019, Oncor added unmanned aircraft systems ("UAS"), more commonly referred to as drones, to its operations fleet to facilitate safe, efficient, and thorough inspections of its transmission assets. To maximize this program's effectiveness and ensure personnel could respond to emergency and planned work scenarios in a timely fashion,

Oncor provided UAS pilot training to select Oncor employees. The ability to conduct aerial inspections, like other technology-centered investments described above, makes data points more accessible, allowing Oncor to analyze the health of the system with greater accuracy.

More generally, Oncor engages in continuous resource analysis to complete both planned and reactive projects. This analysis takes into account many factors, such as current labor numbers, contractor efficiency, anticipated attrition, increased asset counts for maintenance, and capital investments to support load growth and system improvements. This analysis is a three-to-five-year resource forecast that provides insight into areas where strategic growth and investment are necessary for the continued health of the system. This analysis relies on Oncor's investments in its OTIS and PETE systems described above, which house the data used as variables in Oncor's analysis.

b. Increased Contractor Workforce

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S EFFORTS TO INCREASE ITS CONTRACTOR WORKFORCE.

A. Accelerated demand for electric infrastructure in Texas has increased Oncor's demand for contract labor, while simultaneously restricting the pool of contractors who are available for a given Oncor project. To address this situation, Oncor has prioritized increasing the size of its contractor workforce, ensuring that the Company's ability to satisfy customer demand is not constrained by a lack of available contractors. At the same time, Oncor has made efforts to ensure that its new contractors can be engaged for a scope of work that meets all of Oncor's construction needs. A second consequence of

the increased demand for contract labor has been a recent increase in the cost of labor. Accordingly, wherever possible, Oncor has sought to engage new contractors in long-term Master Service Agreements ("MSAs"), which, in tandem with Oncor's unit-pricing methodology, drive down labor costs so that Oncor can complete projects in an even more timely and cost-effective manner. Oncor's MSAs and unit-pricing methodology are discussed in greater detail below and in the direct testimony of Oncor witness Ms. Buck.

c. Workforce Development

Q. HAS ONCOR INVESTED IN DEVELOPING ITS INTERNAL WORKFORCE?

A. Yes. Oncor makes ongoing investments in major initiatives to acquire, develop, maintain, and train an in-house workforce with a high degree of technical expertise and the ability to service Oncor's system from locations across Oncor's service area. This investment paid dividends during Winter Storm Uri, when the broad geographic footprint of Oncor's workforce enabled Oncor to stage personnel at 75 critical locations where they worked to proactively protect Oncor's system and remained ready and able to respond to disruptions during the most severe conditions.

Although Oncor generally relies on contract labor for heavy construction, the Company strongly prefers to rely on internal resources for functions such as diagnostic testing, checkouts, minor construction, and commissioning of new equipment. To ensure the Company maintains the level of experienced personnel required to develop and operate its system, Oncor's Transmission organization has increased its internal workforce from approximately 750 to over 900 employees since Oncor's last base-rate case, including former Sharyland employees. As part of its commitment to developing this workforce, Oncor invests significant resources in recruiting and training, such as providing support for personnel to obtain two-year and

four-year technical degrees and providing regulatory compliance trainings, including the safety training required under H.B. 4150. Oncor's development efforts are among the key reasons for the success of Oncor's capital plan. These employees support not only the construction and commissioning activities of transmission projects, but the routine maintenance of Oncor's transmission lines and equipment as well.

d. Construction Matting

Q. PLEASE EXPLAIN ONCOR'S INVESTMENTS IN CONSTRUCTION MATTING.

A. Oncor has recently changed the sourcing process for construction matting to control project costs. Construction matting allows heavy equipment to pass through wet soil to avoid work stoppages for equipment that is literally stuck in the mud. This was not an issue during the CREZ projects in the early 2010s, when Texas was experiencing a substantial drought. The dry working conditions during CREZ were favorable for constructing transmission projects and obviated the need for matting. Since then, however, Texas has experienced significantly more rain, and construction matting has become integral to many of Oncor's projects. Moreover, the amount and duration of matting required for several of Oncor's recent projects were substantially greater than had historically been required for similar projects. To contain these costs, Oncor proactively changed its sourcing process so that matting could be sourced in-house and made subject to Oncor's robust system of cost controls, which are described in the direct testimony of Oncor witness Ms. Buck.

E. Summary of Transmission Investment

Q. PLEASE SUMMARIZE ONCOR'S TRANSMISSION CAPITAL INVESTMENT SINCE DECEMBER 31, 2016.

A. Since the test year in its last base-rate case, Oncor has made reasonable and necessary investments to ensure its ability to provide safe, reliable electric transmission service across its system. All of the investments were prudent. The balance of Oncor's net Transmission Plant In Service on December 31, 2021, was approximately $10.5 billion, exclusive of the transmission assets Sharyland put in service after January 1, 2013, which add an additional $1.594 billion of investment. Both the Oncor and Oncor NTU Assets are prudent and should be included in rates. I have provided this amount to Company witness Mr. Ledbetter. This amount accurately reflects the level of plant that is used and useful by Oncor in providing service to the public as of the end of the test year.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER THE COSTS ASSOCIATED WITH ONCOR'S TRANSMISSION CAPITAL INVESTMENT?

A. Oncor's transmission capital expenditures represent strategic investments to expand the ERCOT grid, facilitate robust wholesale competition in the ERCOT market, and allow Oncor to provide safe, reliable electric power to its Texas customers in compliance with the Commission's rules and the ERCOT's protocols. Allowing cost-recovery for these investments signals to businesses, customers, and other utilities nationwide that this Commission will continue to strengthen the ERCOT grid by allowing investments that fortify the transmission system and facilitate efficient delivery of wholesale electricity. Not allowing Oncor to recover these prudent, reasonable, and necessary expenses may discourage Oncor and other utilities from making investments that are needed to ensure that the ERCOT transmission system is able to keep pace with the rising demand resulting from Texas' unprecedented growth.

V. TRANSMISSION AND LOAD-SERVING SUBSTATION OPERATION AND MAINTENANCE ACTIVITIES

Q. HOW DOES ONCOR OPERATE AND MAINTAIN ITS TRANSMISSION AND LOAD-SERVING SUBSTATION FACILITIES?

A. From a maintenance perspective, except where regulatory standards require otherwise, Oncor employs a condition-based maintenance program for transmission facilities that factors in information from facility operation, conditions found during maintenance activities, information discovered during investigation of misoperation events, and information obtained from the industry. This program targets both the specific maintenance performed on facilities and how often this maintenance is done in a programmatic manner. Systems and facilities with a higher probability of misoperation and those with a higher consequence of misoperation are given a higher level of focus, which includes a combination of the following: on-line condition-based monitoring (dissolved gas analysis, infrared, and temperature) and off-line inspections (confirming on-line condition monitoring) at more frequent intervals.

Specific modification, inspection, and maintenance programs are directed toward those facilities that warrant attention based on the factors described above. There is also a time-based component on some maintenance and inspection program activities. These time-based intervals are reviewed periodically as appropriate. The maintenance program, utilizing a variety of on-line, non-invasive diagnostics and off-line non-invasive equipment testing, has allowed Oncor to better prioritize its transmission maintenance activities.

Oncor maintains its facilities consistent with good utility practices and attention to the operation and maintenance of a safe and reliable electric delivery system. In support of these objectives, the Company reviews its

methodologies and practices as needed to ensure operation of its transmission system in an efficient and economical manner.

Oncor has extensive experience and expertise in utility operations that allow the Company to effectively manage the system to meet operational objectives. O&M expenses include those expenses necessary to operate, monitor, and control the system in addition to maintaining the equipment necessary to deliver power safely and reliably.

Q. PLEASE DESCRIBE ONCOR'S MAJOR TRANSMISSION-RELATED O&M ACTIVITIES.

A. The Transmission Operations organization performs direct switching; conducts routine maintenance, inspection, testing, and calibration of station equipment for the purpose of maintaining performance; keeps station logs and records; and prepares reports on station operation. In addition, this group patrols lines and stations and maintains, inspects, and tests transmission lines, transformers, switching equipment, protection and control systems, and other equipment necessary for safe and reliable service. This group also performs work associated with establishing clearances for construction, maintenance, tests, and emergency purposes. Going forward, as part of these activities, the Transmission Operations organization will take actions to comply with Oncor's statutory obligations under H.B. 4150, which imposes certain requirements regarding transmission line inspections and reporting. Oncor expects that the annual O&M cost for these activities will be approximately $3.1 million. As described in the direct testimony of Oncor witness Mr. Ledbetter, the Company is seeking a known and measurable O&M adjustment to reflect these recurring annual costs.

The Equipment Support group provides supervision of design specifications for equipment, equipment recommendations, and tracking of equipment performance and coordinating manufacturer support. Best

practices are documented in procedures and technical references regarding the installation, testing, and maintenance of station and transmission line assets, which drive the methodology for critical maintenance and construction work. Additional services include management of mobile equipment, spare transformers, tankers, circuit breakers, regulators, and degasification equipment. This organization also oversees and coordinates transmission aerial inspection activities. The activities of TGO and T&D Services are described in the testimony of Company witness Mr. Martin.

Finally, vegetation management is necessary to provide and maintain physical clearances required for the operation of a safe and reliable system. These services are more completely described in the direct testimony of Oncor witness Mr. Keith Hull.

Q. HOW DO ONCOR'S MAINTENANCE PRACTICES SUPPORT ONCOR'S OPERATIONS DURING EXTREME WEATHER?

A. Oncor's maintenance practices protect the Oncor system from extreme weather of all types, including extreme summer and winter conditions. As described above, Oncor conducts regular inspections and patrols, trains its workforce and ensures they have the materials and equipment needed to service Oncor's system during extreme conditions, maintains investments in capital spares for timely replacements when equipment fails, and uses advanced tools, including UAS, data analytics, and infrared thermography, to identify issues early, minimize component failures and enhance Oncor's ability to conduct needed repairs as quickly and efficiently as possible.

Q. ARE THE TRANSMISSION O&M EXPENSES RELATED TO THE ACTIVITIES DESCRIBED ABOVE REASONABLE AND NECESSARY?

A. Yes. The transmission O&M expenses, as reflected in Schedules II-D-1 and II-D-2, sponsored by Oncor witness Mr. Ledbetter, including the proposed known and measurable adjustment, are reasonable and necessary. The

activities associated with those expenses are common utility activities that are essential for Oncor to provide service to the public pursuant to PURA and the Commission's Substantive Rules and to comply with all applicable legal and regulatory requirements. Oncor's effective cost management activities ensure that the expenses associated with transmission O&M activities are reasonable.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER THE COSTS ASSOCIATED WITH ONCOR'S TRANSMISSION-RELATED O&M ACTIVITIES?

A. Oncor's transmission-related O&M activities are critical to Oncor's safe and reliable operation of the transmission system. As I have already described, Oncor's standards and procedures minimize operational issues that could impair delivery of safe, reliable electric energy. As a result, even during the most extreme weather event in recent memory, Oncor's transmission system remained operational and experienced only a handful of issues that did not impact generation output or Oncor's customers. The Commission has recently reaffirmed the importance of these types of activities with the inclusion of ERCOT inspections in the weatherization standards in the recently revised Tex. Admin. Code § 25.55. Oncor's O&M activities allow Oncor to identify and correct the very issues that ERCOT inspections seek to address. Recovery of the costs for these activities facilitates Oncor's safe and reliable operation of its transmission system—particularly in extreme weather conditions.

VI. MATERIALS AND SUPPLIES INVENTORY

Q. HOW DOES ONCOR MANAGE ITS MATERIALS AND SUPPLIES INVENTORY?

A. As addressed in detail in the direct testimonies of Company witnesses Ms. Buck and Mr. Hull, Oncor seeks to maintain an inventory of materials and

supplies that is adequate to support normal operations and meet emergencies at reasonable costs. This includes investment in capital spare substation transformers and mobile substation equipment, which allow for timely replacements and restoration of service.

Q. WHAT LEVEL OF INVENTORY OF TRANSMISSION MATERIAL AND SUPPLIES IS ONCOR REQUESTING FOR INCLUSION IN RATE BASE?

A. As discussed by Company witness Mr. Ashley Thenmadathil, Oncor has proposed to use the thirteen-month average inventory balance of $77,242,553 as the amount of transmission-related Materials and Supplies to be included in rate base. This reflects the Company's anticipated level of ongoing inventory requirements. Company witness Mr. Thenmadathil has provided this amount in RFP Schedule II-B-8, which details the materials and supplies balance.

Q. IS THE LEVEL OF INVESTMENT THAT IS REQUESTED BY ONCOR FOR INVENTORY OF TRANSMISSION MATERIAL AND SUPPLIES REASONABLE AND NECESSARY?

A. Yes. Oncor's investments related to inventory of transmission material and supplies are (1) reasonable and necessary, and (2) reflective of the appropriate average level of inventory for the test year. The processes utilized by Oncor ensure that the investments associated with the above inventory are reasonable and necessary. Such an inventory is essential for Oncor to provide normal, on-going electric utility service to the public pursuant to PURA and the Commission's Substantive Rules.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER THE COSTS ASSOCIATED WITH ONCOR'S MATERIALS AND SUPPLIES INVENTORY?

A. Oncor's materials and supplies inventory is critical to reliability because it allows Oncor to quickly respond to the needs of the transmission system. An insufficient inventory of materials and supplies can significantly prolong

outages and other transmission issues by delaying necessary repairs and replacements while Oncor acquires the required components. Allowing recovery of costs for Oncor's materials and supplies inventory will encourage prudent investments in a sufficient level of reserve materials to ensure that procurement of commonly used or long-lead-time components does not create a shortage that hampers the reliability of the ERCOT grid.

Q. WHY DOES ONCOR MAINTAIN CAPITAL SPARE SUBSTATION TRANSFORMERS AND MOBILE SUBSTATION EQUIPMENT?

A. Because substation power transformers are large, high-cost assets with long-lead purchase times, Oncor maintains capital spare substation transformers and mobile substation equipment, which allow for timely replacements and restoration of service. Maintaining a fleet of capital spare substation transformers allows Oncor to provide continuous operations during times of equipment failure or the loss of a use of the substation transformer on the Oncor system. Likewise, mobile substation transformers and associated equipment must be maintained and available at all times to respond to emergency needs of the system. Mobile transformers are not permanent parts of the system, but they play a vital role in system reliability. The availability of mobile transformers and related equipment enables Oncor to quickly restore service when there is equipment failure, forced outages for repairs, or in emergency situations due to natural disasters or storm response. When mobile transformers and equipment are used to restore electrical service, they function as part of the grid and allow Oncor's system to be reliably served during emergency events or critical outage situations.

VII. ELECTRIC PLANT HELD FOR FUTURE USE

Q. PLEASE DESCRIBE THE COMPANY'S INVESTMENT IN EPHFU.

A. The Company has purchased certain properties for future use that would be difficult if not impossible to obtain, especially in an economical manner, if the

purchases were deferred. The Company has acquired the properties included in RFP Schedule II-B-6, co-sponsored by myself and Company witness Mr. Ledbetter. These properties typically include sites for service centers, switching stations and substations, and ROW for transmission line facilities. RFP Schedule II-B-6 includes property that has been designated for future use for station siting and ROW acquired for the installation of transmission line facilities.

Q. ARE THE COSTS IDENTIFIED AS EPHFU REASONABLE AND NECESSARY?

A. Yes. The costs associated with EPHFU, as reflected in Schedule II-B-6, are reasonable and necessary. The early acquisition of certain properties provides benefits to Oncor's customers. The principal benefit is the assurance that the necessary properties will be available when required. As an example, substation or switching station sites must be located in proximity to the demand for power, which can place them in high-growth areas where land is increasingly difficult to acquire. If Oncor did not acquire such properties in a timely manner, they either may not be available when needed, or would likely be available only at substantially higher prices. Moreover, necessary permits may be difficult to obtain after an area has been developed.

A concrete example of this is Oncor's Scatter Branch Substation site in Greenville, Texas. Oncor acquired the property for the Scatter Branch station in 2017 because Oncor's distribution planning forecasted that a station would be needed in this area in the near future. Oncor proceeded to construct the station in 2020 to prevent overloading the nearby Neylandville Substation. Given the rapid development in this area, if Oncor had not acquired this property before it was actually required, the property would likely have been substantially more expensive and may not have been available for purchase. This example demonstrates how Oncor acquires certain necessary,

strategically located properties to ensure that these properties will be available when needed in the future.

Because Oncor's customers benefit directly as a result of long-range planning and timely acquisition of property resources, it is appropriate that these investments be included in the Company's rate base. Failure to include such resources in rate base would serve as a strong disincentive to make timely and prudent purchases for future use assets because the Company would forever lose the financing costs on these investments over the time period pending the start of expected or planned construction activities. All the assets on RFP Schedule II-B-6 and their associated costs have been prudently incurred and are reasonable and necessary investments for future construction activities. However, in keeping with the Commission's past rate-making practices relative to this investment, only the investment associated with construction projects that are planned to commence within ten years from the end of the test year have been included in rate base. I have provided these projects to Mr. Ledbetter for inclusion in rate base. Company witness Ms. Buck addresses the need for these strategic investments in greater detail in her direct testimony.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER THE COSTS ASSOCIATED WITH ONCOR'S EPHFU?

A. Prudent investments in EPHFU allow Oncor to acquire the property necessary to engage in strategic, long-term system planning. Especially given the decreased availability, and increased value, of Texas real estate in recent years, it is imperative that Oncor, stay ahead of load growth in its transmission planning. Allowing Oncor to recover the costs associated with its EPHFU promotes strategic planning and encourages the earlier acquisition of property that is needed to facilitate the growth of the ERCOT transmission system in

accordance with Oncor's prudent, long-term plans. This, in turn, will help to control electric rates for Texas businesses and consumers.

VIII. SCHEDULE M

Q. PLEASE PROVIDE SOME BACKGROUND REGARDING THE NEW SCHEDULE M IN THE RFP.

A. Schedule M is one of the newest additions to the Commission's RFP. It was adopted by the Commission in July 2020. Schedule M creates a single schedule for certain transmission projects above a $250,000 cost threshold. Schedule M contains information about the estimated and final costs of projects and identifies where a greater-than-10% variance exists between the estimated and final costs. Where such variances exist, Schedule M requires explanations and contextual information regarding these variances. As mentioned above, Schedule M is a relatively new requirement that was adopted in 2020. Given that Oncor's rate case seeks review of Oncor projects from January 1, 2017, through December 31, 2021 and Sharyland projects from January 1, 2013 through May 16, 2019, many of the projects required to be included on Oncor's Schedule M were planned, certificated, and/or constructed well before the requirements of Schedule M were adopted.

Q. HAS ONCOR PREPARED SCHEDULE M AS PART OF THIS RATE CASE?

A. Yes. I sponsor Schedule M that is included in Oncor's RFP.

Q. IN PARTICULAR, WHAT CATEGORIES OF PROJECTS ARE INCLUDED IN SCHEDULE M?

A. Schedule M covers four categories of projects when the capital cost of the project exceeds $250,000: (1) transmission lines granted a CCN; (2) transmission lines that were exempt from CCN requirements; (3) substations that have facilities with transmission-level voltages; and (4) high-voltage switching stations. The instructions for Schedule M state that transmission plant additions that did not require a CCN, equipment

replacements, and station capital maintenance are not included. However, out of an abundance of caution, Oncor has in some cases included capital maintenance projects in its Schedule M where such projects might be construed as an upgrade or addition. An example would be projects where Oncor replaced aging electromechanical equipment with newer technologies.

Q. HOW MANY PROJECTS ARE INCLUDED IN ONCOR'S SCHEDULE M?

A. Oncor's Schedule M includes over 1,600 projects.

Q. HOW MANY OF ONCOR'S SCHEDULE M PROJECTS HAVE VARIANCES FROM THE ESTIMATE OF MORE THAN 10%?

A. Approximately 385 projects have a delta at least 10% above the relevant cost estimate. Additionally, 341 projects that Oncor reported on Schedule M had final costs there were at least 10% below the relevant cost estimates.

Q. DOES SCHEDULE M INCLUDE EXPLANATIONS FOR THE VARIANCES?

A. Yes. Under Schedule M, Section VI-M-3.1, Oncor provides an explanation for each cost variance more of than 10%. These explanations describe the reasons costs were incurred and provide relevant context as to why the work was necessary.

Q. DOES ONCOR'S CONTRACTOR PRICING METHODOLOGY IMPACT THE COST ESTIMATES AND VARIANCES IN SCHEDULE M?

A. Yes. However, I should first provide some background on Oncor's contractor pricing methodology. While this methodology is addressed in detail in the direct testimony of Oncor witness Ms. Buck, I will briefly describe certain aspects of that methodology in order to provide context as to how it relates to the cost variances reflected in Schedule M. Oncor employs a unit-pricing methodology for its capital projects. This means that agreements between Oncor and its contractors are designed to establish pricing based on individual units of work rather than the project as a whole. Thus, with a labor contractor, Oncor will have a fixed unit cost for each activity within the scope of work

anticipated for that project. Using a linear transmission line project as an example, Oncor would have a fixed cost for each gate to be installed, foundation to be drilled, pole to be erected, or mile of vegetation to be cleared. Generally, Oncor attempts to maximize the number of unitized items through its contracts to control project costs to the fullest extent feasible. Given Oncor's size and the number of projects it completes each year, Oncor is able to lock in favorable unit rates from its contractors, which benefits customers by reducing capital project costs.

Q. HOW DOES THE UNIT-PRICING METHODOLOGY RELATE TO THE COST VARIANCES IN SCHEDULE M?

A. The key point here is that Oncor's unit-pricing methodology is designed to drive the lowest reasonable costs for both Oncor and Oncor's customers, not the lowest number of variances from the estimate. This is an important distinction. Stated differently, if Oncor employed fixed pricing with its contractors for entire projects, costs would always match the contractor estimates with zero variances for the same scope of work. However, such an approach would incentivize the contractors to include contingency in their cost estimates. This benefits the contractor, but not the ratepayer, when the actual project costs to the contractor come in below estimates. Oncor's unit-cost methodology simply approaches cost containment in a different, but more efficient, manner. Oncor's methodology ensures that Oncor secures the lowest possible cost for each unit of work and simplifies comparisons between contractors, limiting their leverage to negotiate for contingencies. Oncor then has internal processes and safeguards in place to ensure that only the necessary number of units are used for each project. While this may lead to more variances from the estimate than a fixed-cost procurement approach, it also provides greater visibility into the project's costs, and ultimately lower costs for customers, by ensuring that the lowest unit price is paid. Through

this approach, customers reap the benefits of cost savings, as only the costs actually required for construction are included in the project costs.

Q. LOOKING AT THE PROJECTS WHERE FINAL COSTS EXCEEDED ESTIMATED COSTS, ARE THERE OTHER COMMON DRIVERS OR REASONS THAT COSTS WERE GREATER THAN ESTIMATED?

A. While each project is different, and project-specific factors will always be present, there are certain recurring, and often related, variance explanations that impact multiple projects on Schedule M. These common drivers include non-MSA contract labor, outage or clearance issues, unforeseen construction obstacles, and changes in project scope. While this list is not exhaustive, these factors impact multiple projects, so I will address them each in turn.

Q. CAN YOU EXPLAIN HOW NON-MSA CONTRACT LABOR DRIVES VARIANCE?

A. As I mentioned above, most of Oncor's contract labor is negotiated through MSAs with primary contractors. MSAs are long-term agreements, through which the contractor benefits from a long-term business relationship with Oncor and Oncor benefits by securing favorable pricing, terms, work priority, and other benefits. While a substantial portion of Oncor's labor is secured through these types of arrangements, at times, MSA contractors may not be available or the scope of work may extend beyond what was negotiated under the MSA. Non-MSA labor typically has a higher unit cost. The necessity of using non-MSA labor is a common driver of the cost variances included in Schedule M.

Q. CAN YOU PROVIDE AN EXAMPLE OF A SITUATION IN WHICH ONCOR WOULD BE REQUIRED TO ENGAGE NON-MSA LABOR?

A. Several scenarios could lead Oncor to engage non-MSA contractors. Perhaps the most prevalent is a lack of MSA contractor availability. As I have already discussed, the last several years have seen substantial demand for

new infrastructure in west Texas and other areas of the Oncor system. This has required Oncor to expand its typical pool of contractors. Often, Oncor has treated its non-MSA contracts as an opportunity to "audition" new contractors with the hope to further expand its pool of MSA labor. However, new contracts, even new MSA contracts, have often come at costs exceeding Oncor's historical cost for MSA labor. Although there are other factors at play, this is generally attributable to the recent increase in labor costs. This is just one consequence of a recent inflationary trend that is increasing the cost of Oncor's materials and labor more broadly. That trend is discussed in detail in the direct testimony of Oncor witness Mr. Dylan A. D'Ascendis. As it relates to Schedule M cost variances, project estimates are generally compiled assuming MSA labor. However, when contractor availability or other issues force Oncor to rely on non-MSA contractors, increased labor costs can lead to variances from the estimates. Of the approximately 385 project variances included on Oncor's Schedule M, the use of non-MSA labor was a contributing factor in 40 of these projects.

Q. WHY ELSE MIGHT ONCOR NEED TO USE NON-MSA CONTRACTORS?

A. Another reason Oncor might use non-MSA labor on a particular project would be when circumstances surrounding the project require a change from standard practices. A good example of this is when a clearance cannot be obtained to take a line out of service, requiring that the work be done "hot," or while the line remains energized. When Oncor estimates the costs of a project, it often cannot know if ERCOT will approve or deny its request for a clearance during the construction period. If a clearance is denied, the work may need to proceed with the line energized to avoid costly project delays. Where Oncor's MSA with a contractor does not cover hot work, Oncor must rely on non-MSA labor, often at a higher cost, to complete the project. Thus, the need to switch to hot work can drive variances from project estimates.

This issue has become more salient given ERCOT's summer outage moratorium.

Q. IN THE EXAMPLE ABOVE, YOU MENTION HOW THE ERCOT CLEARANCE PROCESS CAN HAVE IMPACTS ON FINAL PROJECT COSTS. CAN YOU EXPLAIN THIS CLEARANCE PROCESS AND ITS IMPACTS?

A. Yes. Except in emergency situations, TSPs must obtain approval from ERCOT to de-energize transmission equipment by requesting a clearance in ERCOT's Outage Scheduler. For projects requiring de-energization of transmission equipment, Oncor makes reasonable efforts to submit planned clearance requests to ERCOT at least 90 days in advance. Projects proceed under the assumption that ERCOT will approve the outage requests required to complete the project. However, if ERCOT denies an outage request, work often must proceed on energized facilities at a higher cost, or the project may be delayed while Oncor submits another request to ERCOT. The latter can have a cascading impact on other projects and other market participants, potentially including other TSPs.

Q. CAN YOU PROVIDE SOME EXAMPLES OF THE OTHER TYPES OF UNANTICIPATED OBSTACLES OR CHALLENGES YOU REFERRED TO EARLIER IN YOUR TESTIMONY?

A. A simple example that impacts projects each year is the weather. While Oncor factors typical weather fluctuations into its cost estimates, extreme or sustained fluctuations might necessitate a drastic change in construction practices or timing that can impact costs beyond Oncor's reasonable expectations. The last few years have illustrated just how dramatic such changes can be, as I described above in addressing Oncor's investment in construction matting. The sharp and sudden transition from drought conditions during CREZ to a sustained wet period has posed a serious

challenge for transmission line construction. While matting is not a totally unforeseen expense for Oncor's construction projects, the sudden shift in the amount of matting needed has resulted in unanticipated costs and variances from project estimates. Of the 385 projects reported on Oncor's Schedule M with a variance greater than 10%, the cost of construction matting was a contributing factor in 32 of those projects. Oncor's proactive efforts to improve how construction matting is sourced is intended to minimize these variances going forward.

Another example of unforeseen obstacles is soil composition. Oncor cannot conduct core samples on private property when preparing project cost estimates. Therefore, assumptions must be made with less than perfect information regarding soil conditions. Certain projects since the last base-rate case have encountered immensely challenging soil conditions on both ends of the spectrum, from solid rock to sandy soil. When rock is encountered in the construction process, substantial additional labor and different equipment are required to drill foundations and erect structures. Similarly, when sand is prevalent in the soil, structure foundations require significantly more concrete as well as casing to prevent water seepage. Each of these additional factors results in additional time and expense that could not be reasonably foreseen at the time the estimates were prepared.

Q. CAN CHANGES IN PROJECT SCOPE ALSO BE A DRIVER OF COST VARIANCES?

A. Certainly. Occasionally, unforeseen factors beyond Oncor's control require changes to the scope of a project as it was initially conceptualized. Often, these changes will result in cost variances. One example of such a change in project scope occurred on Oncor's Wolf to Moss 345 kV transmission line project. There, the route originally approved by the Commission was a standard 345 kV transmission line that was parallel to and abutting an existing

138 kV line as the two traversed a large tract of land that housed a commercial sand mine. Over the course of negotiations with the landowner, it became apparent that acquiring new ROW across the mine would dramatically increase project costs, due to the need to compensate the landowner for the lost mining output. Accordingly, Oncor decided to instead construct the 345 kV line within the existing 138 kV ROW along this property. Oncor constructed this portion of the line as a double-circuit 345 kV line with a single-circuit 138 kV underbuild within a constrained ROW, thus requiring structures and construction practices outside the scope of what would otherwise have been required. However, this change ultimately resulted in avoided costs by preventing Oncor from having to purchase or otherwise acquire land that was part of an active mine.

IX. SUMMARY AND CONCLUSION

Q. ARE ONCOR'S CAPITAL INVESTMENTS AS DESCRIBED IN YOUR DIRECT TESTIMONY AND INCLUDED IN SCHEDULE II-B USED AND USEFUL?

A. Yes. Oncor and Oncor NTU's invested capital as described in my direct testimony is used and useful in rendering service to the public under PURA, the Commission's Substantive Rules, and the Company's tariffs.

Q. ARE THE LEVELS OF CAPITAL INVESTMENT DESCRIBED IN YOUR DIRECT TESTIMONY REASONABLE AND NECESSARY FOR THE CONTINUED SAFE AND RELIABLE OPERATION OF THE ONCOR SYSTEM?

A. Yes. The capital investment described in my direct testimony and included in the Company's rate base is reasonable and necessary for constructing new facilities, maintaining, upgrading, modifying, or relocating existing facilities, and serving new customers. In summary, the capital investment described in my testimony is reasonable and necessary for Oncor to provide service to the

public consistent with the requirements of PURA, the Commission's Substantive Rules, and the Company's tariffs.

Q. ARE THE COSTS ASSOCIATED WITH ONCOR'S CAPITAL INVESTMENT REASONABLE AND NECESSARY?

A. Yes, as described in my direct testimony and in the direct testimony of Company witness Mr. James A. Greer, Oncor pro-actively and effectively manages its labor, materials and supplies, and other necessary costs of doing business such that the amounts expended by Oncor on its transmission assets and related substations and other facilities, as I have described herein, are reasonable and necessary to allow Oncor to meet its goal and obligation of providing safe and reliable electric delivery service in its rapidly growing service territory.

Q. ARE THE COSTS ASSOCIATED WITH ONCOR NTU ASSETS REASONABLE AND NECESSARY?

A. Yes. This statement is echoed by the direct testimony of Mr. Nichols who also addresses the prudence and costs associated with certain Oncor NTU Assets.

Q. ARE ONCOR'S O&M EXPENSES REASONABLE AND NECESSARY?

A. Yes. As described in my direct testimony, and that of Company witnesses Messrs. Greer and Hull, Oncor's O&M expenses related to its transmission assets and related substations and other facilities are reasonable and necessary.

Q. ARE ONCOR'S INVESTMENTS IN MATERIALS AND SUPPLY INVENTORY, CAPITAL SPARES, AND EPHFU REASONABLE AND NECESSARY?

A. Yes. As explained above, a materials and supply inventory is essential for Oncor to provide normal electric utility service to the public pursuant to PURA and the Commission's Substantive Rules. Additionally, Oncor's EPHFU is reasonable and necessary to allow Oncor to acquire strategically located

properties that may not be available in the future or only would be available at substantial additional costs.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does