in each of Oncor's geographic regions to make forward decisions concerning maintenance and restoration activities.

Oncor's control center personnel have access to these insights and predictions as well. As a result, these control center personnel are able to use their broader situational awareness to verify and support field activities more efficiently. The information provided in this context directly results in shortening outage times, avoiding outages, and improving planning and preparation for future maintenance and grid capacity investments.

A. Enhanced Operational Decisions To Improve Reliability

Q. HOW HAS ONCOR'S IMPLEMENTATION OF ADVANCED DATA ANALYTICS AFFECTED OPERATIONAL DECISIONS AND RELIABILITY?

A. Advanced Data Analytics is providing data points and predictions to allow more timely and accurate operational decisions. These data points and predictions were not available prior to Oncor's implementation of Advanced Data Analytics. The ability to make more timely and accurate decisions based on data analytics has led to increased reliability.

Q. PLEASE PROVIDE AN EXAMPLE OF HOW ONCOR HAS ENHANCED OPERATIONAL DECISIONS AND IMPROVED RELIABILITY DUE TO ADVANCED DATA ANALYTICS.

A. Oncor engineers have used AMS meter consumption data to develop a real-time load estimate for every one of Oncor's approximate 965,000 distribution transformers. This load estimate enables control center operators to access estimated loading levels on every sub-portion of a distribution feeder across Oncor's entire grid. By having access to and considering loading levels, even in areas where no SCADA devices are available, operators make better switching decisions, which avoids possible equipment failures or limits facility outages to the smallest possible scope. Similarly, these data insights also enable Oncor engineers to estimate fault

locations, thereby shortening driving and troubleshooting times during service restoration.

B. Better Investment Decisions To Avoid Outages

Q. PLEASE EXPLAIN HOW ONCOR IS MAKING BETTER INVESTMENT DECISIONS TO AVOID OUTAGES BY USING ADVANCED DATA ANALYTICS.

A. Oncor is using Advanced Data Analytics techniques—specifically machine-learning algorithms, along with historical data, current data, and signatures of data anomalies—to predict future equipment failures. Analytic models have predicted, with a relatively high degree of accuracy, imminent equipment failure, and these models are used to initiate work orders for equipment repair or replacement, prior to the failure of the equipment.

Q. HOW MANY TRANSFORMERS HAS ONCOR'S ADVANCED DATA ANALYTICS IDENTIFIED AS NEEDING REPAIR OR REPLACEMENT?

A. Since December 31, 2016, Oncor has either repaired or replaced over 3,800 distribution transformers prior to failure and an outage identified through Advanced Data Analytics.

Q. HOW DOES ONCOR VERIFY THAT TRANSFORMERS AND UNDERGROUND CABLES ACTUALLY NEED REPAIR OR REPLACEMENT?

A. The machine-learning models use consumption and voltage data from meters and look for data "signatures" reflecting problematic scenarios. Transformers and cables with a high probability of failure (*i.e.*, those facilities with a positive data signature) are identified by such a model. In the initial stages of verification of the models, equipment was physically inspected to verify each model's accuracy. After thoroughly verifying the accuracy of the models, physical equipment is occasionally checked before repair or replacement to ensure that each model remains accurate. These inspections have confirmed the continued validity of the model.

Q. PLEASE EXPLAIN THE GENERAL BENEFITS OF ONCOR'S EQUIPMENT FAILURE PREDICTION ANALYSES.

A. These analyses allow Oncor to repair or replace equipment prior to failure, which allows the repair or replacement to be performed as a scheduled, non-emergency work order, occurring in safe weather conditions. Scheduled work orders are typically less disruptive to customer service due to their isolation from other outage events and can be done in a more cost-effective manner. For example, the repair or replacement activity can be completed during normal work hours in conjunction with other work scheduled in the area.

C. Enhanced Restoration and Management

Q. HOW DOES ONCOR CURRENTLY ESTIMATE RESTORATION TIME?

A. Oncor currently uses historical restoration times to determine a statistical approximation of how long restoration may take. These values are established for each type of outage in a particular geographic area. Because of the wide variety of factors that influence restoration times, there are limits to the accuracy of this approach. Oncor, however, is improving on these limits by manually updating restoration time based on field personnel input and through the use of Advanced Data Analytics.

Q. PLEASE EXPLAIN HOW ADVANCED DATA ANALYTICS WILL ALTER THE WAY THAT ONCOR ESTIMATES RESTORATION TIME.

A. As a result of Advanced Data Analytics, Oncor has developed the Advanced Estimated Restoration Time ("ART") model, which is a new, predictive approach that is forward looking and calculates restoration times based on real-life factors, such as outage types, driving distance, resource availability, and dispatch priority. This new algorithm will reduce the number of manual restoration time updates and improve the overall accuracy of restoration time estimates.

Q. HOW LONG HAS ONCOR BEEN TESTING THE ART MODEL?

A. Oncor has actively tested the ART model's accuracy and configuration parameters since June 2020. The testing includes, but is not limited to, a comparison of the actual restoration time to the estimated restoration time calculated by the algorithm.

Q. HOW DOES THE PERFORMANCE OF ONCOR'S ART MODEL COMPARE TO ITS CURRENT MODEL?

A. Currently, the performance of the models is equivalent. However, Oncor's current model based on historical restoration times is operating at its peak effectiveness, with no opportunity for further improvement. On the other hand, Oncor continues to refine the configuration of the ART model and expects to see improved Estimated Time of Restoration ("ETOR") accuracy versus calculations based on historical restoration times.

Q. PLEASE EXPLAIN HOW ONCOR DETERMINED THAT THE ART MODEL IS EXPECTED TO BE MORE ACCURATE THAN THE CURRENT MODEL.

A. The current model only uses historical data when calculating an ETOR. In addition to historical data, the ART model also includes real-world and forward looking data points, such as driving distance, event type, and resource availability. The inclusion of these additional data points is expected to result in more accurate restoration time calculations.

Q. WHEN DOES ONCOR ANTICIPATE THAT THE ART MODEL WILL BE USED TO ADVISE CUSTOMERS?

A. Oncor intends to pilot the use of the ART model to a subset of customers in 2022 for a period of three to six months. The length of this pilot period is driven by the ability to test the pilot against a variety of system conditions and events. After reviewing the pilot period results, full implementation of the ART model may be completed by the end of 2022.

D. Enhanced Storm Damage Prediction

Q. PLEASE EXPLAIN ONCOR'S "SPECIFIC STORM DAMAGE PREDICTION MODEL."

A. The "Specific Storm Damage Prediction" model predicts how many customers are expected to be affected based on the weather forecast. The model also predicts the scale of key damage types, such as broken poles and cross arms, wire down, and vegetation issues. The Specific Storm Damage Prediction model's algorithm is based on historical repair data that Oncor collected during past storms.

Q. HOW ACCURATE IS THE SPECIFIC STORM DAMAGE PREDICTION MODEL?

A. The accuracy and "granularity" of the Specific Storm Damage Prediction model is still limited. Therefore, Oncor categorized the output in ranges expressing the overall magnitude for each type of damage. Furthermore, this algorithm is subject to the accuracy of the weather forecast. As a result, the model has been most beneficial to use immediately after a storm has impacted Oncor's facilities and before on-the-ground resources assess the storm's impact. While outages are reported immediately by Oncor's advanced metering system, specific damage scopes are not available until Oncor's damage assessors conduct assessments. The Specific Storm Damage Prediction model's algorithm overcomes this limitation and allows Oncor to make more informed resource decisions at the beginning of storm restoration, which shortens the overall duration of the restoration.

E. Targeted Vegetation Management

Q. HOW DOES ONCOR CURRENTLY ASSESS VEGETATION MANAGEMENT REQUIREMENTS?

A. Oncor performs Vegetation Management when deemed necessary from visual inspections as a result of equipment failure or outage causation, and from customer initiated inquiries. Company witness Mr. Keith Hull discusses Oncor's Vegetation Management program.

Q. PLEASE EXPLAIN HOW ADVANCED DATA ANALYTICS IS TRANSFORMING ONCOR'S VEGETATION MANAGEMENT ASSESSMENT.

A. Although Oncor's Vegetation Management algorithms are still in their infancy, Oncor believes that these algorithms will ultimately lead to cost reduction and provide several benefits, such as alleviating the need to conduct certain on-the-ground assessments, allowing for more targeted management practices, and helping identify critical priority zones due to the proximity of vegetation to equipment.

Q. PLEASE DESCRIBE HOW TECHNOLOGY DEVELOPMENTS AND ADVANCED DATA ANALYTICS ALLOW ONCOR TO MORE EFFECTIVELY CONDUCT VEGETATION MANAGEMENT.

A. Oncor views Vegetation Management as an area that presents a prime opportunity to achieve benefits through the application of Advanced Data Analytics (as do many utilities). Recent technology advancements and the availability of new data sources, such as high-resolution satellite imagery, infrared color spectrum analysis, light detection and ranging or "LiDAR," and computer image recognition, will allow Oncor to assess, prioritize, sort, and filter Vegetation Management activities by proximity to conductors, height, canopy size, and vegetation species.

Q. HOW DO CUSTOMERS BENEFIT FROM ONCOR'S TARGETED VEGETATION MANAGEMENT ADVANCED DATA ANALYTICS?

A. Improvements to the Vegetation Management process allow Oncor to be more precise (such as targeted trimming or more specific intervals for clearing) as a result of output from Advanced Data Analytics and will be well received by Oncor customers compared to traditional Vegetation Management methods. This increased precision of Vegetation Management benefits customers because they will have less Vegetation Management-related outages.

F. Technology and Customer Engagement Advancements

Q. HOW ARE TECHNOLOGY DEVELOPMENTS AND ADVANCED DATA ANALYTICS IMPACTING ONCOR EMPLOYEES WHO ASSIST CUSTOMERS?

A. Advanced Data Analytics is providing more timely, accurate, and convenient information to those Oncor employees who interact with customers than has historically been possible. Advanced analytic algorithms provide valuable insights through the combination of data from disparate sources and disconnected systems, leading to a more positive customer service experience.

Customer-centric data, such as outage history, new service status, history of Oncor interactions, high bill analysis and temperature sensitivity, consumption trends, Electric Reliability Council of Texas ("ERCOT") market data, and energy efficiency data are examples of pertinent data available to customer-assisting Oncor employees.

Q. HOW DO ONCOR EMPLOYEES WHO ARE WORKING TO ASSIST CUSTOMERS BENEFIT FROM ADVANCED DATA ANALYTICS?

A. Timely, accurate, and actionable data is invaluable to Oncor employees who assist customers. Advanced Data Analytics achieves this through the combination of disparate data sets, large volumes of data, predictive algorithms, and advanced technologies to sort, filter, and refine data presented to Oncor employees who assist customers.

Q. PLEASE GIVE AN EXAMPLE OF ADVANCED DATA ANALYTICS POSITIVELY IMPACTING CUSTOMER ENGAGEMENT AND SATISFACTION.

A. Advanced Data Analytics has enabled Oncor to produce data sets and applications leading to reduced call times at its Customer Contact Center. One such analytics application (Customer 360) has resulted in an approximate forty second decrease in call-handling time for outage events as a result of the combination of disparate data sets (*e.g.*, ERCOT market transactions, known outage events, and real-time AMS data from the customer's meter), providing Oncor's customer service representative a clear understanding of the customer's outage and positively impacting customer satisfaction.

Q. PLEASE DESCRIBE THE STEPS ONCOR IS TAKING TO ENSURE THAT THE BENEFITS OF ADVANCED DATA ANALYTICS ARE REALIZED BY CUSTOMERS.

A. Advanced Data Analytics solutions are built in an iterative and reusable manner with customer value in mind. Oncor is producing advanced analytics tools (*e.g.*, reports, dashboards, and portals) used by employees to assist customers through various support channels (*e.g.*, customer service representatives, interactive voice response, web portals, and mobile applications). Oncor is also providing a subset of Advanced Data Analytics output for the customer's use in a self-service manner, which is achieved by making data available via customer portals and publicly available mobile applications.

VI. SUMMARY AND CONCLUSION

Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY IN THIS PROCEEDING.

A. Through Advanced Data Analytics, Oncor is using new and existing data sources, along with innovative tools and technologies, to improve operational efficiencies, grid reliability, and the customer experience.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

AFFIDAVIT

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Hagen Haentsch, who, having been placed under oath by me, did depose as follows:

My name is Hagen Haentsch. I am of legal age and a resident of the State of Texas. The foregoing direct testimony is offered by me are true and correct, and the opinions stated therein are, to the best of my knowledge and belief, accurate, true and correct.

Hagen Haentsch

SUBSCRIBED AND SWORN TO BEFORE ME by the said Hagen Haentsch this 19th day of April, 2022.

CYNTHIA MCCOY
Notary Public, State of Texas
Comm. Expires 03-06-2026
Notary ID 12560818-1

Cynthia McCoy
Notary Public, State of Texas

2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
HAGEN HAENTSCH

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

Testimony Workpapers/Haentsch

HH Oncor Board Analytics Overview.pdf

Converting Data Into Business Value @ Oncor

Adding the "Smart" to the Smart Grid

Hagen Haentsch
Director, Distribution Operations Center West (WDOC)
hagen.haentsch@oncor.com

WE DELIVER.

ONCOR.

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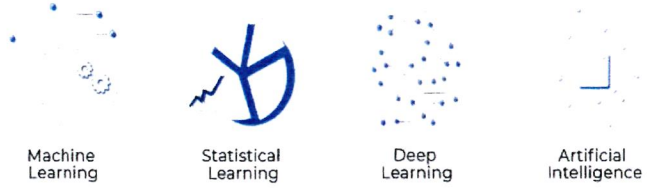
How ONCOR Puts the "Smart" into the "Smart"Grid

Oncor's Investments in Grid Technology:

- **Advanced Metering**
- **Distribution Automation**
- **Communications Infrastructure**

Data & Information "Assets"

+ Application of Advanced Data Analytics:



GRID-FOCUSED DECISION ENHANCEMENTS

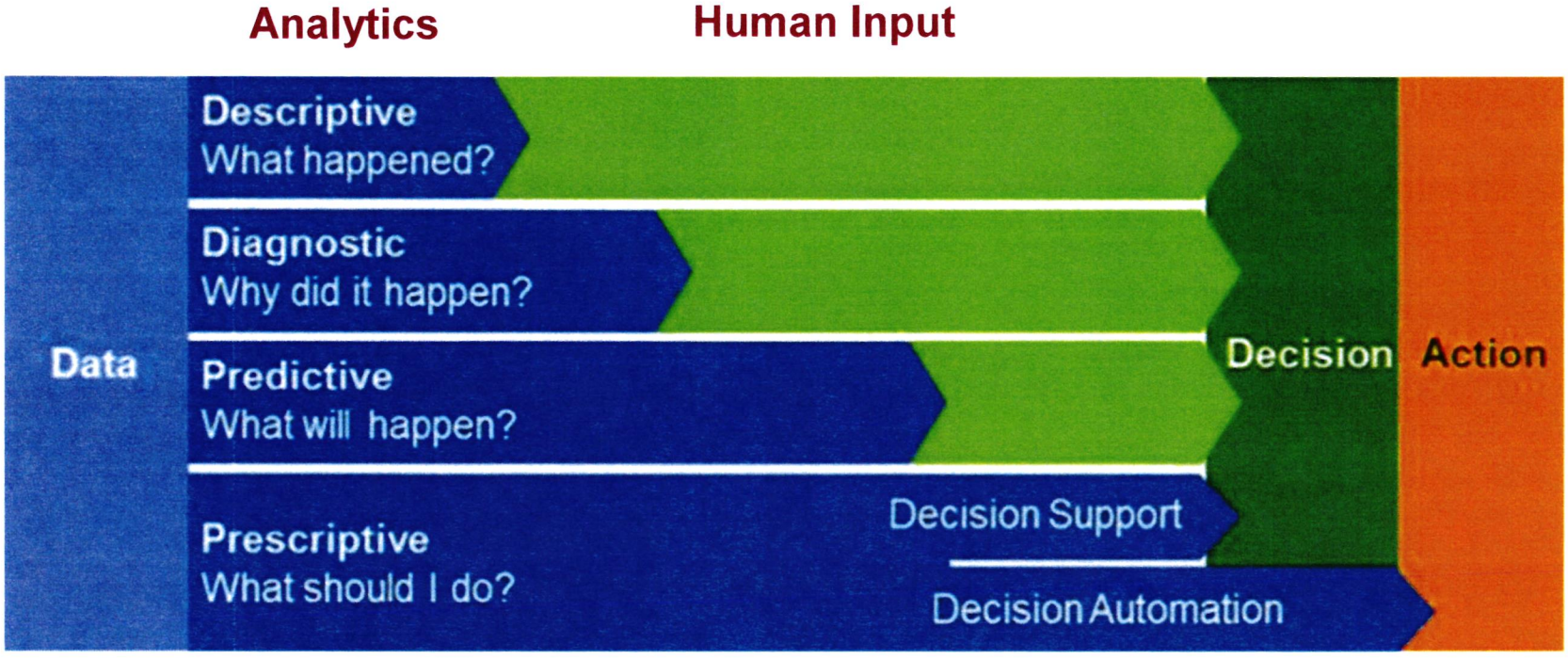
Process Efficiency
Resource Productivity
Asset Utilization
Strategic Investment Options

CUSTOMER EMPOWERMENT

Customer Decision Support
Added-Value Services
Market Defense
Market Enablement

ONCOR

Actionable Decision Support & Automation



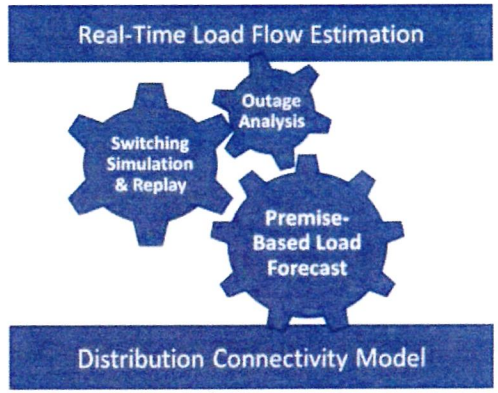
Source: Gartner

Enhanced Operational Decisions to Improve Reliability

Distribution State Estimator / Load Forecasting

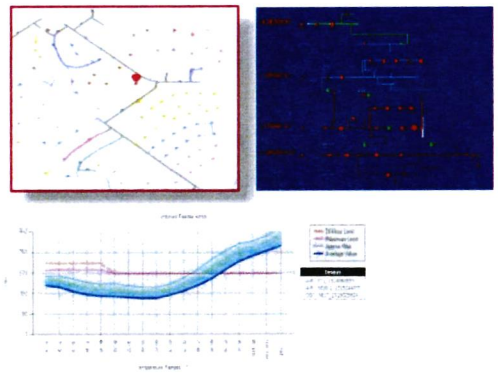
- Neural-network based real-time and predictive **load flow simulation and fault location estimates** are critical for switching decision during service restoration and for the avoidance of critical over load conditions.

  ***Reliability Improvement**: 3 – 5 minutes / yr*



- Distribution **"connectivity errors"** compromise operational decision quality and cause "mis-routed" customer notifications.

  ***Customer satisfaction** for Oncor Alert users is 97%, the highest of any type of transaction for Oncor.*



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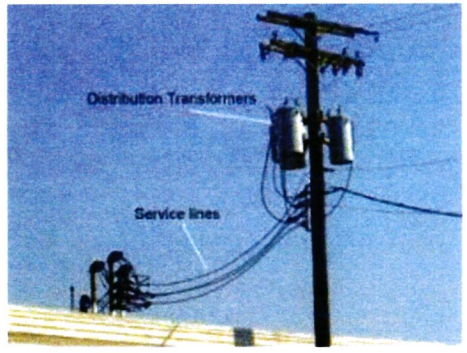
Better Investment Decision to Avoid Outages

Equipment Failure Prediction:

- Using advanced meter data, in 2019, almost 2,000 power quality issues were detected before causing an outage. This avoided over 1,500 unplanned truck rolls per year.
- Using advanced regression algorithms and machine learning supported failure models, in 2019 the maintenance strategy team proactively identified 250 overloaded transformers and 349 transformers that had damaged coils (5,000 avoided outages).
- Using advanced statistical regression modeling, the maintenance strategy team has been able to accurately predict the failure probability of specific underground cable segments. This resulted in a 40% cable-related SAIDI improvement at unchanged CapEx funding levels.



Key Benefits:

- Safety
- Avoided customer outages (SAIDI)
- Increased capital efficiency

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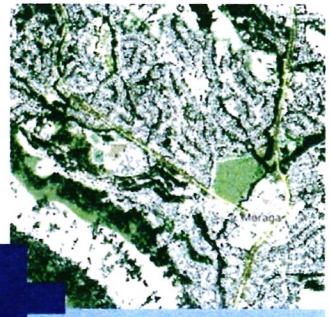
Targeted Vegetation Management at Scale

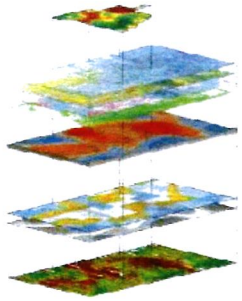
Massive Geospatial Data

- Satellite, and aerial imagery
- Weather
- Soil moisture
- Foliage



Combined with Oncor Data

- Asset inventory
- Condition and location
- Historical outage data



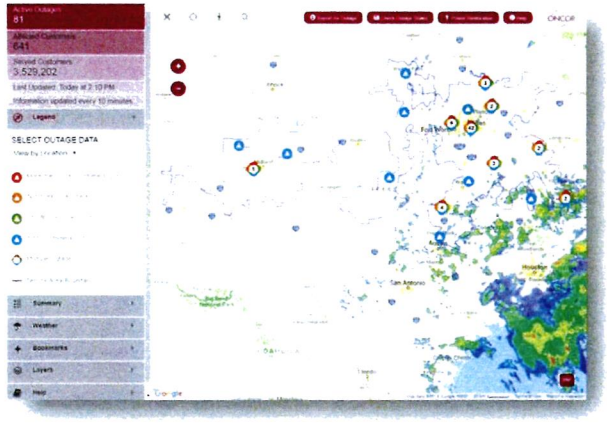
- Depict current state of vegetation across all of Oncor's territory (137k miles) including tree heights and growth
- Identify critical priority zones due to proximity of vegetation to equipment
- Assess, prioritize, sort and filter by asset class, districts equipment types etc

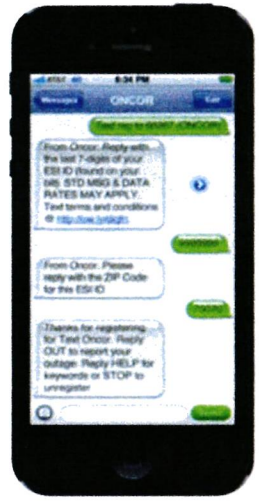
Enhanced Storm/Outage Management & Communication

Example 1: Advanced Estimated Restoration Time

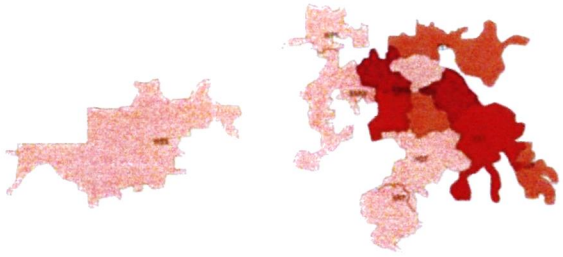
Forward looking estimate taking real conditions into account: resource availability, work scope, driving distance etc.

Accuracy improved to > 84%





Example 2: Specific Storm Damage Prediction



Severity	4
District	MTN
OH Range	50+
Pole Range	10-16
X-Arm Range	4-8
XFMR Range	12+
Max GUST	39
Max Gust Previous Hour	16
Max H Max	84
Severity Colors	OH

Prediction Output:

# of downed poles
# of broken cross-arms
# of downed wire
# of x-former replacements

Technology & Customer Engagement Advances

Over the past 18 months, T&D Operations and Technology-Measurement-Customer Engagement have partnered to expand advanced analytics into technology and customer facing processes.

Customer 360 View

Enables any employee directly assisting customers, (i.e., contact center, customer relations, local service advisors, etc.) to have a comprehensive view of a customer's experience with Oncor:

- Outage history
- New service status
- History of interactions with Oncor
- High bill analysis and temperature sensitivity
- Prediction of engagement and satisfaction

Impact:

Reduced call times, reduced truck rolls or follow-up interactions, increased customer and employee satisfaction, enables new customer Apps and Information Portals

How is Oncor Building its Capacity to Be "SMART"

- Close collaboration between distinct areas of expertise: IT, engineering, operations, customer operations
- Prioritize for use case synergies, compounding benefits, and building of internal capability/expertise
- Promote agile culture (iterative solutioning) and accountability by aligning use case ownership with ownership of business objectives
- Measured injection of external talent to supplement internal expertise (data science, math/statistics, data management)
- Balancing platform investments with benefits generated to minimize technology uncertainty and risk of stranded investments

ONCOR

INDEX TO THE DIRECT TESTIMONY
OF ELLEN E. BUCK, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC

DIRECT TESTIMONY OF ELLEN E. BUCK

I. POSITION AND QUALIFICATIONS

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

A. My name is Ellen E. Buck. I am employed by Oncor Electric Delivery Company LLC ("Oncor" or "Company"). I hold the position of Vice President of Business and Operations Services. My business address is 1616 Woodall Rodgers Freeway, Dallas, Texas, 75202.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor of Science in Industrial Engineering from Georgia Institute of Technology and a Master of Business Administration from Southern Methodist University. I am a registered Professional Engineer in Texas. I have over 15 years of experience in the design, construction, operations, and maintenance of transmission and distribution ("T&D") facilities. I have overseen engineering, design, right-of-way acquisition, and field operations for Oncor's transmission line, switching station, and substation infrastructure. In 2014, I assumed responsibility for the Business and Operations Services organization. I was elevated to my current position as Vice President in 2017.

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

A. Yes. I presented pre-filed and live testimony in Docket No. 40953 and pre-filed testimony in Docket Nos. 48231, 48400, 49427, 50734, and 51996.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to: (1) provide an overview of Oncor's Business and Operations Services organization, which I lead; (2) describe Oncor's T&D supply chain strategies, including support for the Company's investments in strategic sourcing and procurement, inventory management,

working reserves, and facilities; and (3) discuss Oncor's strategic response to the historic challenge of the coronavirus disease 2019 ("COVID-19") pandemic, including support for the associated costs included in the requested recovery of the COVID-19 regulatory asset, and how the Company successfully continued day-to-day operations and service to customers during the pandemic.

Q. WAS YOUR DIRECT TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes. My direct testimony and exhibit were prepared by me or under my direction, supervision, or control and are true and correct. I will address each topic in the same order reflected in the above listing.

III. OVERVIEW OF BUSINESS AND OPERATIONS SERVICES ORGANIZATION

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S BUSINESS AND OPERATIONS SERVICES ORGANIZATION.

A. As I mentioned above, I lead the Company's Business and Operations Services organization. This organization includes the following groups: Assets Planning; T&D Supply Chain; Engineering Standards & Maintenance Strategy; the Center for Excellence & Innovation; and Transmission Services. I provide a more detailed description of the services that these groups provide and a listing of each group's manager in my Exhibit EEB-1 attached to this testimony. Although my direct testimony focuses on the T&D Supply Chain group and its functions, please see the direct testimonies of Company witnesses Messrs. Wesley R. Speed and Keith Hull for additional discussion of these groups and the T&D functions that they support.

IV. T&D SUPPLY CHAIN

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE T&D SUPPLY CHAIN GROUP.

A. Oncor's T&D Supply Chain group is responsible for providing strategic sourcing, procurement, warehousing, and logistics resources to deliver products and services as efficiently as possible to Oncor business units. This group has also recently formed a supply chain strategy and technology team that focuses on new processes and technological solutions to improve Oncor's supply chain systems as a whole. As I address in further detail below, the T&D Supply Chain group is also responsible for facilities and real estate management.

Q. HOW DOES ONCOR IMPLEMENT ITS T&D SUPPLY CHAIN STRATEGIES?

A. Because the strategic sourcing, procurement, and management of the materials and resources that support Oncor's T&D facilities and functions are so critical to the reliable, and ultimately cost-effective, provision of electric utility service to the public, the Company utilizes highly trained and experienced personnel. These professionals are organized within the Strategic Sourcing and Procurement department of the T&D Supply Chain group to efficiently implement the Company's supply chain strategies. Below I further describe this team's functions and Oncor's investments in working reserves, inventory, and facilities.

A. Strategic Sourcing and Procurement

Q. EXPLAIN ONCOR'S STRATEGIC SOURCING AND PROCUREMENT DEPARTMENT ("SOURCING"), ITS RESPONSIBILITIES, AND KEY OBJECTIVE.

A. The Sourcing team is part of Oncor's T&D Supply Chain group and is made up of professionals dedicated to and specialized in: (1) strategically identifying material and services suppliers; (2) negotiating favorable pricing, terms, and conditions; (3) executing contracts and purchase orders; (4) developing relationships with suppliers; and (5) setting and monitoring performance expectations. The Sourcing's team's objective is to ensure the availability of the materials and services necessary to construct and reliably

operate Oncor's T&D infrastructure while effectively managing procurement costs.

Q. HOW DOES ONCOR'S SOURCING TEAM CONTRIBUTE TO RELIABLE, COST-EFFECTIVE SERVICE TO ONCOR CUSTOMERS?

A. The Sourcing team uses a multi-layered approach that includes four key components. First, Sourcing develops long-term, strategic relationships with suppliers, often using master services agreements ("MSAs"). Long-term relationships provide benefits such as economies of scale that drive efficiency, standardization, and cost certainty.

Second, the Sourcing team employs a supplier relationship model that fosters relationships at all levels in the supplier's organization, holds regular strategic discussions to discuss industry trends, forecasts, and performance, and continually evaluates supplier performance through a variety of metrics including, but not limited to, delivery, quality, pricing, innovation, service performance, and safety. Through the Sourcing team, Oncor also benchmarks supplier performance against other industry suppliers.

Third, the Sourcing team segments and diversifies the Company's supply base by focusing on the distinct categories of T&D Construction, Vegetation Management, Facilities, Professional Services, Transformers, Structures, and Fleet. There is a defined sourcing strategy for each category that includes arranging for support from primary and secondary suppliers. In other words, Oncor strives to have more than one supplier for any material or service provided in a given category. By engaging this deep bench of suppliers who are prepared to meet the Company's needs, Oncor has been able to mitigate risks within the labor and commodity markets – a strategy that has been particularly critical during the COVID-19 pandemic where there has been a prolonged tightening of global supply chains and a limited availability of materials.

Fourth, Oncor insists on strong contractual terms that include protections and benefits such as defined terms, indemnification, warranties, delay credits, market-competitive pricing that is often adjustable based on market fluctuations or an industry index, most-favored-pricing language, and key performance indicators.

Through all of these practices, Oncor is able to secure the services and materials necessary to execute on the Company's plans, and respond to emergency and storm events, all while ensuring that service is both reliable and cost-effective to customers.

Q. WHAT IS A MASTER SERVICES AGREEMENT OR "MSA" AND WHY DOES ONCOR USE THEM?

A. MSAs typically govern certain significant aspects of ongoing relationships between counterparties. In Oncor's case, it has MSAs with service providers that govern the types of services and materials available, warranties, indemnities, and annual spending requirements. These agreements define the terms and boundaries of the relationship between Oncor and the supplier. Individual task requests are issued for a defined scope of work under the terms of the MSA. Through this process, MSAs provide predictability, efficiencies, and cost savings in Oncor's procurement of services and materials.

In negotiating MSAs, the Sourcing team seeks to maximize value and satisfy Oncor's near-term needs, while simultaneously minimizing Oncor's long-term commitments and maintaining operational flexibility to engage in and grow additional advantageous and strategic relationships. For example, in recent negotiations for an MSA with one of Oncor's construction service providers, Oncor was able to secure a comprehensive total service offering that included competitive pricing and extended use of the contractor's capabilities, as well as other favorable contractual terms. The Company secured these benefits while simultaneously reducing the prior minimum annual contract volume by more than 25%.

Q. PLEASE EXPLAIN HOW ONCOR WORKS TO OBTAIN BEST PRICING.

A. Oncor generally leverages its economies of scale and long-standing relationships with suppliers and works hard to obtain the most value for the materials and services that it procures. As an example, Oncor has negotiated "most-favored pricing" terms in various materials and services agreements. In one services agreement example with hourly rates, the supplier is required to ensure that its pricing for Oncor is lower than for all the supplier's other customers that use a similar volume of hours each year. Oncor has also used this approach with materials contracts, securing "most-favored customer" language in certain contracts that prevents the supplier from charging Oncor more for products than it charges any other third party receiving similar products. Finally, Oncor utilizes a benchmarking-of-costs clause that allows the Company, at any time, to compare pricing from other suppliers and provides mechanisms for the supplier to address pricing where Oncor discovers variances. If those variances remain unresolved, the Company has grounds for contract modification or termination. Together, these provisions provide Oncor the optionality it needs to help ensure that it pays competitive prices.

Q. HOW DOES ONCOR'S SOURCING TEAM MANAGE THE LEAD TIME OF ITS MATERIALS?

A. Oncor has successfully implemented several initiatives to minimize the effects of supply chain disruptions to its construction schedules. Examples of those initiatives include: (1) the execution of MSAs with key suppliers that have maximum guaranteed lead time and liquidated damages safeguards to protect against delays; (2) the provision of enhanced medium- and long-term forecasts (up to five years out) to suppliers so they understand and can plan for Oncor's materials needs; (3) the execution of bulk purchase orders to get ahead of demand in several T&D areas; (4) evaluating and tracking material and product alternatives to address shortages; (5) working closely with strategic suppliers to enforce contractual

protections and elevate risks as they arise in an expedited manner; (6) secondary supplier diversification efforts; (7) implementation of improved, forward-looking multi-year strategies to secure availability; and (8) the execution of consignment agreements with distributors in which the supplier must maintain an adequate amount of inventory of consigned products at local warehouses to meet Oncor's ongoing needs, including (without limitation) peak needs that may vary from Oncor's historical or forecasted demand for certain items like fuses, connectors, crossarms, line hardware, cable accessories, or wood poles.

Q. WHAT IS ONCOR'S SUPPLIER DIVERSITY PROGRAM AND HOW DOES IT CONTRIBUTE TO THE COMPANY'S SOURCING STRATEGY?

A. Oncor's Supplier Diversity program seeks to identify, develop, and grow relationships with diverse businesses that supply services and materials to the Company. Oncor actively participates in various local community chambers of commerce, councils, and networks across its service area. This allows the Company to engage in an ongoing effort to identify, support, and grow Oncor's base of diverse suppliers. Through this program, Oncor currently contracts with over 150 diverse suppliers, including minority, veteran, and women-owned businesses. By ensuring that we have an inclusive supplier base, in combination with our secondary supply strategy, Oncor is able to execute a successful supply chain strategy. For example, during the pandemic, Oncor was able to secure pandemic-related supplies from our diverse suppliers while many other companies suffered from a lack of inventory. In short, not only does this Supplier Diversity program strengthen Oncor's resiliency in operating the largest T&D system in the state, but it also supports the local economies and the communities in which we operate and serve.

B. Inventory Management

Q. HOW DOES ONCOR ENSURE THAT IT IS MAINTAINING A REASONABLE LEVEL OF INVENTORY?

A. Oncor uses strategic, operational, and tactical tools to ensure that it is maintaining a reasonable inventory level. Additionally, an annual Sarbanes Oxley review process identifies any inactive, excess, or obsolete inventory. Also, as I mentioned above, Oncor utilizes its supplier relationship management and stakeholder collaboration efforts to provide additional insight into our overall inventory management strategy.

Q. WHAT ARE SOME SPECIFIC EXAMPLES OF HOW ONCOR MANAGES ITS INVENTORY LEVELS?

A. As in other contexts that I mentioned above, Oncor utilizes MSAs and other supplier contracts to ensure optimal results to the Company and, in turn, our customers. For example, the Company has negotiated consignment agreements and vendor-owned inventory agreements with several suppliers to reduce our inventory while also ensuring that we have material readily available. In addition, Oncor shares forecasts with its suppliers in order to reserve capacity and secure delivery. Several of our agreements also contain lead-time provisions that contractually obligate suppliers to deliver on time. The Company also utilizes an additional layer of delivery protection by assessing delay credits for late deliveries.

From a process standpoint, Oncor continuously identifies items that either could be removed from inventory or for which inventory levels could be reduced, thereby allowing our distribution centers to focus on only carrying items that are critical to construction. These efforts allow the Company to better manage its inventory while increasing material availability to better support T&D operations.

C. Working Reserves

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY ON WORKING RESERVES.

A. In this section of my testimony, I first discuss Oncor's investments in working reserves of distribution transformers, regulators, and capacitors. I describe the details regarding Oncor's utilization of these assets, the

operational reasons why Oncor must periodically replace them and, for those reasons, why it is critical for the Company to maintain a working reserve in order to provide adequate and uninterrupted service to its customers. I also explain that the associated investment is used and useful and ensures the reliability and overall service quality of Oncor's distribution system.

Please see the direct testimony of Company witness Mr. Speed for details regarding Oncor's investments in mobile substation equipment, capital spare substation transformers, and investments in land for substations pending construction. Please see the direct testimony of Company witness Mr. Daniel E. Hall for Oncor's investments in meters and meter-related hardware.

Q. DOES ONCOR INCLUDE AS PART OF ITS NET DISTRIBUTION INVESTED CAPITAL CERTAIN COSTS SPENT ON ACQUIRING DISTRIBUTION ASSETS THAT ARE NOT YET ENERGIZED, BUT HELD IN RESERVE? PLEASE EXPLAIN.

A. Yes. As I detail further below, from a customer service and reliability perspective, Oncor must purchase in advance certain long-lead-time distribution assets (such as transformers, including regulators or regulating transformers, and capacitors), some of which must be held in reserve. For example, the lead times for distribution transformers vary from six to 28 weeks from the time that Oncor orders a transformer until the transformer is received from the manufacturer. The lead time in any particular case will be dependent upon manufacturing capacity and availability of raw materials and specific components required to build the transformer at the specified voltage, rating, and configuration requested.

Having transformers available for installation is imperative to Oncor's ability to provide reliable service with minimal interruption to electric customers. Given the cost and the lead time for this type of distribution asset, as well as the large variability in types of transformers on Oncor's

system, it is not feasible from either an operational perspective or a reliability perspective for Oncor to wait to purchase the asset until Oncor has an immediate need to install and energize it; doing so would significantly prolong new customer installations and impair Oncor's ability to respond to unexpected emergency needs as they arise, including catastrophic storm-related events.

Q. CAN YOU PROVIDE A REAL-WORD EXAMPLE OF ONCOR'S WORKING RESERVES BEING UTILIZED TO MEET CUSTOMER NEEDS?

A. Yes. During Winter Storm Uri, Oncor replaced approximately 2,300 distribution transformers, which amounted to approximately 20% of the total amount of distribution transformers that the Company installed for all of 2020. The Company was able to meet customer needs during this critical time because these assets were held in working reserve. This illustrates the importance of Oncor maintaining a working reserve supply of distribution transformers. These units are critical during times when our service area experiences a high level of storm activity and at times when the need for replacements on the system is high. As I explain further below, all of these assets, whether energized or held in working reserve, were in service during the test year from an operational perspective and are used and useful in connection with Oncor's service to the public.

Q. IN ADDITION TO DISTRIBUTION TRANSFORMERS, ARE THERE OTHER TYPES OF DISTRIBUTION ASSETS WITH LONG LEAD TIMES?

A. Yes, the average lead time for capacitors exceeds the lead time for some transformers. The lead time for capacitors is 17 weeks. As with transformers, for these types of long-lead-time assets, Oncor cannot wait to purchase the assets until there is an immediate need to install and energize them. Instead, it is essential that Oncor maintain a working reserve quantity to meet unexpected failures or emergency needs.

Q. HOW DOES ONCOR'S PRACTICE OF MAINTAINING A WORKING RESERVE OF DISTRIBUTION TRANSFORMERS AND CAPACITORS IMPACT CUSTOMER RELIABILITY?

A. By maintaining an adequate working reserve of this equipment, Oncor is able to serve new customers in a timely fashion and quickly address equipment failures sustained during storms, extreme weather, or any other failure situations, thereby reducing delays in the fulfillment of new service requests and minimizing the duration of customer outages.

Q. HOW DOES ONCOR'S PRACTICE OF MAINTAINING A WORKING RESERVE OF DISTRIBUTION TRANSFORMERS AND CAPACITORS IMPACT ONCOR'S ABILITY TO SERVE NEW CUSTOMERS?

A. As Company witness Mr. James A. Greer discusses in his direct testimony, Oncor has experienced and continues to experience significant load and customer growth at an unprecedented pace within its service area. By purchasing certain quantities of these distribution assets in advance and holding them in working reserve, Oncor is able to ensure that an adequate supply is readily available to satisfy new customer growth as it arises, rather than being forced to wait weeks or months to receive the assets from the manufacturer while a customer goes without service.

Q. HOW DOES ONCOR DETERMINE THE APPROPRIATE QUANTITIES OF DISTRIBUTION TRANSFORMERS THAT IT NEEDS TO MAINTAIN IN WORKING RESERVE?

A. Based on the system configuration across the Company's diverse service area, there are 1,363 unique distribution transformer styles on Oncor's distribution system. To minimize the amount of working reserves needed, however, Oncor currently uses only 399 unique transformer styles specifically designed to serve as compatible working reserves to back-stand all 1,363 transformer styles if equipment fails and to serve new customers. In any given year, 40% to 60% of Oncor's total demand for transformers is reactive in nature and varies based on the style of the transformer and

seasonal adverse weather conditions. To provide for the possibility of a significant increase in demand due to weather, working reserve target levels are increased for the summer and winter seasons and reduced during the spring and fall. In addition to the unpredictable Texas weather, Oncor must also consider national demand and account for limited additional production capacity at the four major distribution transformer manufacturers in North America during periods of response to national weather events.

In addition, Oncor has to ensure adequate working reserves are available at all of its 56 field service centers. Field service center stock levels are maintained based on open or pending construction projects, historical and seasonal reactive demand, and the number of similar units installed within a given service area. The Company may assign additional units to a particular field service center based on the center's distance from the central warehouse or based on supply replenishment shipping schedules. Working reserve levels at the field service centers are based on one week of historical reactive demand for single-phase transformers, in addition to all transformers required for pending open projects within two weeks of each project's scheduled construction start date. Resupply for the field service centers is provided weekly from the equipment central warehouse. As with the central warehouse reserve levels, the Company seasonally adjusts reserve levels at the field service centers based on the higher probability of significant weather events during the summer and winter seasons.

In addition to maintaining working reserves at field service centers, the central warehouse also maintains the primary working reserve for three-phase transformers, regulating transformers, and specialized transformers, including large distribution auto transformers and distribution network and underground vault transformers. These higher value units are centralized to reduce overall cost and are only supplied to the field service centers for

scheduled upcoming projects, reactive demand, or to back-stand critical customer installations such as hospitals and first responders.

Q. HOW DOES ONCOR DETERMINE THE APPROPRIATE QUANTITIES OF CAPACITORS THAT IT NEEDS TO MAINTAIN IN WORKING RESERVE?

A. For the majority of Oncor's capacitor needs, Oncor determines its working reserve requirements based on annually planned power factor correction and system improvement project requirements. We also determine the Company's capacitor needs based on historically projected quantities for serving new customers and meeting reactive capacitor demand. For all approved, planned projects, the Company orders capacitors for a January 1st delivery date to provide adequate time for installation before summer peak demand. For serving new customers and meeting reactive capacitor requirements, we provide monthly forecasts to the manufacturer to reduce lead times, with a target lead time of three to six weeks on orders that would normally require a 17-week lead time. As needed, Oncor replenishes field service centers through a central warehouse to maintain existing capacitor requirements in the centers' respective service areas.

Q. DOES ONCOR TAKE ANY OTHER STEPS TO MODERATE ITS WORKING RESERVE LEVELS?

A. Yes. The Company minimizes working reserve levels at the central warehouse by leveraging the use of vendor-owned inventory. Oncor utilizes this process to address up to 50% of its annual anticipated system needs during heightened seasonal demand. In addition, Oncor administers an equipment refurbishment and repair program that satisfies over 10% of Oncor's annual system needs. To the extent that Oncor's needs are not covered by vendor-owned inventory or the refurbishment and repair program, the working reserve levels at the central warehouse are designed to provide sufficient weekly replenishment to Oncor's field service centers and provide for heightened seasonal demands during the summer and winter seasons. The Company has established the central warehouse

standard target working reserve to cover one to two weeks' demand for transformers and three to six weeks for capacitors. We designed these levels to proactively provide for unplanned manufacturing and shipping delays. Oncor also increases the transformer buffer by one to two weeks during the summer and winter seasons. If a heightened demand is not experienced as expected, the Company utilizes the elevated reserve stock during the spring and fall seasons.

Q. ARE ONCOR'S INVESTMENTS IN DISTRIBUTION TRANSFORMERS AND CAPACITORS HELD IN WORKING RESERVE AT THE END OF THE TEST YEAR REASONABLE AND NECESSARY AND USED AND USEFUL IN THE COMPANY'S PROVISION OF ELECTRIC SERVICE?

A. Yes, for all the reasons discussed above, these assets were essential to Oncor being able to provide adequate and continuous service to the public. Therefore, the associated investments are reasonable and necessary and used and useful.

Q. ARE ONCOR'S INVESTMENTS IN DISTRIBUTION TRANSFORMERS AND CAPACITORS HELD IN WORKING RESERVE INCLUDED IN THE COMPANY'S INVESTMENT IN MATERIALS AND SUPPLIES INVENTORY?

A. No. Oncor's investment in distribution transformer and capacitor working reserves are classified as Electric Plant in Service. Company witness Mr. W. Alan Ledbetter discusses the accounting for this investment in his direct testimony.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER ITS INVESTMENTS IN TRANSFORMERS, REGULATORS, AND CAPACITORS HELD IN WORKING RESERVE?

A. From an operational perspective, transformers, regulators, and capacitors are essential equipment that must be available on an ongoing basis for Oncor to efficiently operate the largest T&D service system in Texas and provide adequate and ongoing service to its customers. With recovery of

these investments in such working reserves, Oncor is able to mitigate supply chain disruptions, as we have done during the COVID-19 pandemic, minimize outage duration in responses to severe weather and other system-related events, and continue to serve new customers in response to significant growth.

D. Facilities

Q. WHAT FACILITIES DOES THE T&D SUPPLY CHAIN GROUP MANAGE FOR ONCOR?

A. There are over 100 work locations, both leased and owned, for which T&D Supply Chain is responsible. These facilities serve as primary work locations to support Oncor resources across its service area. The T&D Supply Chain group is responsible for maintaining, repairing, and improving office space, materials and supplies storerooms, and service center facilities and, on occasion, for managing the construction of such new facilities.

Q. HOW DOES ONCOR IDENTIFY AND PRIORITIZE IMPROVEMENT INITIATIVES FOR ITS OFFICE, STOREROOM, AND SERVICE CENTER FACILITIES?

A. Oncor considers factors including a facility's proximity to T&D infrastructure, workflow and operational processes, and overall facility efficiency when identifying and prioritizing facility investments. To illustrate, in 2019 Oncor engaged a real estate services firm to create a multi-year strategy to rebuild, refurbish, or refresh buildings and office facilities across our service area to address the significant customer growth that had been experienced and that the Company plans to continue experiencing. This also presented the opportunity for Oncor, where necessary, to modernize facilities and address expiring lease agreements. Many of Oncor's buildings are over 40 years old and no longer support workforce needs from a capacity, functionality, and/or geographic perspective. These efforts have included needed improvements to Oncor's Stanton, Lufkin, Pecos, Sulphur Springs, and

Lancaster locations, as well as updates to our headquarters location in Dallas and central office location in Fort Worth. These newly designed spaces are more energy-efficient with LED lighting, double-paned windows, and high-efficiency HVAC systems

Q. DID ONCOR UNDERTAKE ANY ADDITIONAL FACILITIES INITIATIVES SINCE THE TEST YEAR IN ITS LAST BASE-RATE CASE?

A. Yes. As part of the normal course of business, Oncor undertook several projects related to refreshing and maintaining facilities from January 1, 2017, through December 31, 2021. Examples of these kinds of projects include replacing service center roofs, paving, HVAC replacements, and installing new fencing and security systems. In total, Oncor rebuilt or remodeled 30 of its facilities.

Q. ARE THE COSTS ASSOCIATED WITH ONCOR'S FACILITIES REASONABLE AND NECESSARY AND USED AND USEFUL IN THE COMPANY'S PROVISION OF ELECTRIC SERVICE?

A. Yes. For the reasons I discussed above, the costs associated with the Company's strategy and efforts to rebuild, refurbish, or refresh its facilities are reasonable and necessary and used and useful in Oncor's provision of electric service.

V. ONCOR COVID-19 RESPONSE

Q. PLEASE PROVIDE AN OVERVIEW OF HOW ONCOR HAS RESPONDED TO THE COVID-19 PANDEMIC.

A. Oncor adopted a Pandemic Readiness Plan in 2007 in connection with the H5N1 Avian Flu. The Oncor pandemic response strategy in the plan is based on a two-part goal – minimize virus transmission and sustain essential services. When creating the plan, the Oncor pandemic response team identified nine discrete response groups and worked with subject-matter experts and stakeholders in each group to develop response tactics that are to be implemented during an outbreak. The Pandemic Readiness Plan describes: (1) the events that will trigger each step in Oncor's

response plan; (2) the types, quantities, and distribution procedure for our virus/illness prevention materials; (3) the Incident Command Structure framework that will guide our pandemic response; and (4) the tactics that each pandemic response group will execute at each step of the plan.

After COVID-19 began spreading in Asia, the Company began reviewing and updating its plan in January 2020. Since then, Oncor has continued to implement the Pandemic Readiness Plan at the appropriate step and severity based upon guidance by the Centers for Disease Control and Prevention ("CDC"), the World Health Organization ("WHO"), and local authorities. Oncor has executed this plan without any significant disruptions to our operations or supply chain due to COVID-19 and with a view toward maintaining the health of our workforce and continuing reliable service to customers. In fact, the Company demonstrated increased reliability and safety performance and successfully implemented its capital and operations and maintenance ("O&M") plans in 2020 and 2021 despite the COVID-19 Pandemic. Company witness Mr. Greer addresses these results in his direct testimony.

Q. WHAT HAS BEEN THE TIMELINE FOR THE PANDEMIC READINESS PLAN EXECUTION?

A. Oncor began continually reviewing and updating its Pandemic Readiness Plan in January 2020. On January 30, 2020, Oncor initiated the plan's "Ready/Start Phase." In February 2020, the Company made its first purchase of additional pandemic supplies to supplement the existing inventory of supplies. In early March 2020, Oncor moved to the "Mild: Step One" phase of the plan, and by mid-March 2020, Oncor moved to the final phase of the plan, "Severe: Step Two." Throughout the process, we monitored COVID-19 case numbers reported by CDC and WHO, locations of high-infection rates, and evolving guidelines. We also interfaced with our peer utilities to understand and share best practices on implementation of various aspects of the plan to respond to the pandemic.

After over one year of being in "Severe: Step Two," on May 9, 2021, Oncor returned to the "Mild: Step One" phase of the plan based on guidance from federal, state, and local entities and input from Company management. On July 6, 2021, the majority of personnel who were fully remote began transitioning back to the office with revised work practices in place focused on limiting exposure and maintaining flexibility to best meet the needs of Oncor's customers and employees.

Q. DID THE COMPANY UNDERTAKE ANY EFFORTS THAT WERE NOT PREVIOUSLY LISTED IN THE PLAN?

A. Yes. Following CDC guidelines and best practices, Oncor created several new sets of guidelines and processes specific to COVID-19 that were not previously defined in its plan. These guidelines include: (1) Pandemic Field Operations Guidelines; (2) Guidelines for Storm Response during the Pandemic; (3) Pandemic Vehicle Plan; (4) Supplier Pandemic Readiness Surveys; (5) Supplier Absentee Reporting process; and (6) the Oncor Pandemic Screening Team to perform contact tracing. For an extra level of protection, Oncor installed bipolar ionization HVAC filters in both the Woodall Rodgers Headquarters Building and the new Fort Worth office. To enhance the facility cleaning measures defined in the Pandemic Readiness Plan, Oncor purchased three electrostatic sprayers. As a result of these efforts, Oncor incurred incremental costs during 2020 and 2021, some of which are reflected in the Commission-authorized regulatory asset discussed below and in the testimony of Company witness Mr. Ledbetter.

Q. PLEASE DESCRIBE ONCOR'S APPROACH TO ACCOUNTING FOR INCREMENTAL COSTS INCURRED DIRECTLY RELATING TO THE PANDEMIC.

A. As Mr. Ledbetter further explains in his direct testimony, the ability to account for the incremental costs Oncor has incurred in response to COVID-19 as a regulatory asset, and to seek recovery of that asset, arises from the Commission's March 26, 2020 Order Related to Accrual of

Regulatory Assets issued in Project No. 50664. In that order, the Commission took steps "to provide regulated utility companies some regulatory certainty by authorizing the use of an accounting mechanism and a subsequent process through which regulated utility companies may seek future recovery of expenses resulting from the effects of COVID-19." In response to that order, Oncor created a specific project number for accounting purposes and began to track and periodically review incremental charges associated with our response to the COVID-19 pandemic. These charges are organized into several overarching categories: Employee Related Expenses; Professional/Consulting Services; Contractor Related Services; Materials/Supplies Purchases; Rental/Lease Expenses; and Temporary Office Furnishings. As further detailed in Mr. Ledbetter's direct testimony, the total amount of this regulatory asset for which Oncor is seeking recovery is $34.6 million.

Q. PLEASE PROVIDE SOME EXAMPLES OF THE INCREMENTAL COSTS INCURRED BY ONCOR IN RESPONSE TO COVID-19 AND INCLUDED IN THIS REGULATORY ASSET.

A. Some examples of incremental costs incurred by the Company include the following: (1) security/medical services; (2) additional cleaning; (3) additional information technology support; (4) additional safety and personal protective equipment or "PPE"; and (5) rental vehicles.

The security/medical services expenses relate to costs incurred to provide law enforcement security to facilities to ensure that only employees and required contractors were allowed to enter Oncor facilities and that entry procedures were followed. The Company also incurred costs for contractors to perform temperature screening at Oncor facilities before personnel were allowed to enter facilities. This was done in order to protect the safety of those individuals who needed to be physically present in those facilities. Oncor also incurred additional cleaning expenses that were required to minimize the possibility of contamination. All Oncor facilities

were cleaned multiple times daily in accordance with our Pandemic Readiness Plan protocols. The increased cleaning and sanitizing of Oncor facilities resulted in the need for additional cleaning supplies for sanitizing services in addition to travel-size supplies. Oncor purchased masks and hand sanitizer in bulk for personnel having to report to worksites in person. We also obtained additional safety supplies for rental vehicles and personal vehicles used for Company use. Like many businesses, the Company also engaged additional information technology expenses to maintain Oncor systems in connection with expanded remote-use activity by employees and contractors. Finally, during implementation of the Severe: Step 2 phase of the plan, Oncor limited the use of vehicles to only one person per vehicle, which led to the additional expense for rental vehicles.

Q. HAVE THERE BEEN ANY INCREMENTAL COSTS REMOVED FROM THE COVID-19 REGULATORY ASSET?

A. Yes. As a part of Oncor's review of costs charged to the regulatory asset, any charges that were originally deemed incremental, but have since been incorporated in Oncor's standard operating practice, were removed from the COVID-19 regulatory asset. An example of a cost that was removed is the Company's use of remote meeting platforms such as Cisco Webex and Zoom. While Oncor has utilized these platforms in the past on a very limited basis, these platforms were significantly expanded to allow for successful remote work capability of our employees. Oncor has now deemed that these platforms will be necessary as part of our ongoing business needs and all charges related to the platforms were removed from the regulatory asset. Oncor also removed all employee overtime charges from the COVID-19 regulatory asset because overtime to cover employees who cannot report to duty due to illness, injury, etc., is a normal part of business even outside of pandemic conditions.

Q. WHAT CONTINGENCY PLANS DID ONCOR IMPLEMENT TO ENSURE BUSINESS CONTINUITY?

A. To ensure that services and products remained stable during the pandemic, Oncor relied on its sourcing strategy as I discussed above, including supplier relationship management, to provide situational awareness of our supplier base and the health and availability of their workforce.

We also kept T&D operations personnel within their normal service areas and did not shift them to other areas as workload changed. Instead, Oncor used its contract workforce to balance workload changes and to improve workforce reserves. Additionally, critical infrastructure personnel were segregated from all other areas to maintain protection against the spread of COVID-19. From March 16, 2020, through July 5, 2021, the Transmission Grid Operations group split its control room staff between the main location and the back-up location. This ensured that if an outbreak were to occur at one location, the other location would be available to maintain full responsibility for the Oncor transmission system. Also, the Transmission Grid Operations group restricted all visitors and moved to fully remote training to limit the possibility of exposure and maintain operational readiness. Please see Company witness Mr. Collin M. Martin's direct testimony for additional discussion on these efforts.

Q. HAS THE EXECUTION OF ONCOR'S PANDEMIC READINESS PLAN BEEN SUCCESSFUL?

A. Yes. Oncor has not experienced any significant disruptions to any of its business units as a result of COVID-19. Moreover, the Company experienced a record low number of safety incidents and did not have any negative impacts to its non-storm System Average Interruption Duration Index based on COVID-19. Instead, Oncor had an increase in reliability to customers during 2020 and saw a further increase in reliability during 2021. Company witness Mr. Greer discusses these metrics in detail in his direct testimony and also addresses in detail that Oncor was also able to

successfully implement its capital and O&M plans while providing reliable and efficient delivery of electricity to its customers.

Q. PLEASE DESCRIBE ONCOR'S APPROACH TO THE PANDEMIC AS IT CONTINUES INTO THE FUTURE.

A. Oncor will continue to implement its Pandemic Readiness Plan at the levels necessitated by the pandemic conditions at the time. Oncor will also continue to review the Pandemic Readiness Plan based upon guidance from federal (including CDC guidance), state, and local entities, along with industry best practices.

Some of Oncor's work practices that were utilized during pandemic conditions to ensure continued success in serving customers have been integrated into our standard work practices and will not be changed as any needed implementation of the Pandemic Readiness Plan continues. As I discussed above, an example of practices now integrated into day-to-day use are the tools or platforms needed to remotely connect our employees and the customers that we serve.

VI. SUMMARY AND CONCLUSION

Q. WHAT CONCLUSIONS HAVE YOU REACHED CONCERNING ONCOR'S INVESTMENTS AND PRACTICES WITH RESPECT TO SUPPLY CHAIN, FACILITIES, AND THE COMPANY'S RESPONSE TO COVID-19?

A. Oncor has strategically sourced and procured necessary equipment and services in a cost-efficient manner and has maintained an appropriate level of transformer, regulator, and capacitor working reserves. For the reasons discussed above, these investments are reasonable and necessary and used and useful in the Company's provision of adequate and continuous service to the public. As discussed above, Oncor has also made prudent business decisions regarding its facilities and the associated investments are reasonable and necessary and used and useful. Additionally, Oncor's timely implementation of its Pandemic Readiness Plan in early 2020, and the continued execution of the plan as deemed necessary, has allowed

Oncor to successfully avoid business disruptions based on COVID-19. Finally, the incremental costs incurred by the Company in responding to the COVID-19 pandemic and included in the associated regulatory asset are reasonable and necessary and should be recovered.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

AFFIDAVIT

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Ellen E. Buck, who, having been placed under oath by me, did depose as follows:

My name is Ellen E. Buck. I am of legal age and a resident of the State of Texas. The foregoing direct testimony and attached exhibit offered by me is true and correct, and the opinions stated therein are, to the best of my knowledge and belief, accurate, true and correct.

Ellen E. Buck

SUBSCRIBED AND SWORN TO BEFORE ME by the said Ellen E. Buck this 18th day of April, 2022.

TERI SMART
Notary Public, State of Texas
Comm. Expires 11-13-2024
Notary ID 514088-5

Notary Public, State of Texas

Services Provided by Oncor's Business and Operations Services Organization

Group	Description of Services Provided	Group Manager & Experience
Assets Planning	• Complete studies ensuring compliance with NERC, ERCOT, and Oncor requirements for transmission • Participate in ERCOT stakeholder processes involving planned projects for transmission system • Evaluate the impact of connecting transmission generators to the Oncor system • Produce multi-year substation loading and distribution system loading analysis • Facilitate the interconnection of distribution energy resources through interactions with internal and external stakeholders	Eithar Nashawati, Director; 21 years of electric utility experience; 15 years of experience with Oncor
T&D Supply Chain	• Manage, maintain, and service facilities across the Oncor system • Responsible for material purchases and contract services • Responsible for keeping supply of materials related to construction, operations, and maintenance and managing warehouses • Responsible for equipment management, delivery of units across the Oncor system, repair and refurbishment of used transformers	Kallie Malmgren, Senior Director; 11 years of experience with Oncor

Group	Description of Services Provided	Group Manager & Experience
Engineering Standards & Maintenance Strategy	• Develop strategies, capabilities and tools to enhance organizational and operational effectiveness • Create, modify, and maintain transmission and substation engineering materials and construction standards • Develop and support programs and systems necessary to effectively maintain and operate Oncor assets	Lance Spross, Director; 36 years of experience with Oncor
Center for Excellence & Innovation	• Provide long-term vision for Oncor Continuous Improvement program • Lead in the tactical execution of Oncor's Continuous Improvement program • Analyze data from numerous sources to provide to internal and external stakeholders • Benchmark business processes and performance against external entities	Lou Guerrero, Director; 21 years of continuous improvement experience; 2 years of experience with Oncor
Transmission Services	• Interface with generators, utilities, cooperatives and large retail customers seeking interconnections • Prepare and secure contractual arrangements for interconnections and wholesale transmission service	Robert Holt, Director; 33 years of experience with Oncor

2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
ELLEN E. BUCK

Ms. Buck has no supporting workpapers for her direct testimony.

INDEX TO THE DIRECT TESTIMONY
OF DANIEL E. HALL, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC

DIRECT TESTIMONY OF DANIEL E. HALL

I. POSITION AND QUALIFICATIONS

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

A. My name is Daniel E. Hall. My business address is 1616 Woodall Rodgers Freeway, Dallas, Texas 75202. I am currently Vice President of Measurement and Billing for Oncor Electric Delivery Company LLC ("Oncor" or "Company").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I received a Bachelor of Science degree in Engineering Technology from Texas A&M University in 2000. In 2000, I began my career at TXU Corp., a former parent company of Oncor. Since that time, I have held various positions in field engineering, information technology, program management, distribution operations, vegetation management, fleet operations, emergency preparedness, transmission engineering, and right of way and real estate. In 2012, I became Director of Network Services, and in 2013, I became Director of the Distribution Project Management Organization. In 2016, I was appointed Senior Director of Distribution Services. Then in 2018, I became Senior Director of Transmission Engineering & Right of Way and Real Estate. I was elected Vice President of Measurement and Billing in April 2020. In October 2021, I was appointed by Governor Greg Abbott to the State Energy Plan Advisory Committee. The committee (created by Senate Bill 3 during the 87th Legislature regular session) is tasked with preparing a comprehensive state energy plan that includes methods to improve the reliability, affordability, and stability of the state electric grid.

Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I am responsible for directing the development and implementation of metering practices to accurately measure and report electric energy

delivered through Oncor's transmission and distribution system in accordance with regulatory, industry, market, and the Company's requirements. My overall responsibility includes the development of strategic plans and the execution of those plans associated with the Company's metering assets and resources, as well as overseeing the operational and strategic plans for the Company's revenue management function, which include oversight of billing, payments, and collections.

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

A. No.

II. PURPOSE OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. I describe and support the reasonableness and necessity of Oncor's costs related to providing measurement and billing services. More specifically, in my testimony:

- I describe the Oncor organization responsible for Oncor's measurement and billing activities;
- I describe the measurement services provided by Oncor;
- I explain how Oncor has transformed the measurement and billing services it provides since completion of the deployment of Oncor's advanced metering system ("AMS") in 2012 and how those services benefit Oncor's customers and the Electric Reliability Council of Texas ("ERCOT") market;
- I describe Oncor's integration of its AMS with other critical Oncor technology systems and the resulting improvements in electric system health, market performance, and customer communications;
- I describe how AMS contributed to Oncor's performance during and after Winter Storm Uri;
- I describe the activities undertaken by Oncor's billing function;

- I support the reasonableness and necessity of Oncor's operations and maintenance ("O&M") expenses related to measurement and billing; and
- I discuss the need for Oncor to maintain an adequate meter reserve to ensure customer and market participant needs are met and explain how Oncor's working reserve of meters is used and useful in providing service.

Q. WHY IS IT IMPORTANT FOR ONCOR TO RECOVER ITS COSTS RELATED TO MEASUREMENT AND BILLING?

A. Having accurate metering and billing is critical to the overall effectiveness of the ERCOT market. Our testimonies in this case demonstrate that Oncor's investments in metering and billing are used and useful in providing service, that our O&M associated with those services are reasonable and necessary, and that the amounts related to measurement and billing that we are requesting for inclusion in our proposed rates are critically important to ensuring that we continue to have the ability to provide those services effectively.

Q. WAS YOUR DIRECT TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes. My direct testimony was prepared by me or under my direction, supervision, or control and is true and correct. I will address each topic in the same order reflected in the above listing.

III. ONCOR'S MEASUREMENT AND BILLING ORGANIZATION

Q. PLEASE DESCRIBE THE GROUP WITHIN ONCOR RESPONSIBLE FOR MEASUREMENT AND BILLING.

A. The Measurement and Billing organization that I lead is divided into two groups: Measurement Services and Revenue Management. Our Measurement Services group is responsible for meter readings and all activities related to meters, including testing, maintenance, and all necessary field activities. The Revenue Management group is responsible

for Oncor's billing, payments, and collections. I describe the services provided by each group in the sections that follow.

IV. MEASUREMENT SERVICES PROVIDED BY ONCOR

Q. PLEASE DESCRIBE THE MEASUREMENT SERVICES PROVIDED BY ONCOR.

A. The Measurement Services group is responsible for collecting measurement data for approximately 3.8 million meters that Oncor serves and providing that data to ERCOT and retail electric providers ("REPs") for billing and settlement of the ERCOT market. This group conducts the field service activities associated with meter reading, meter testing, meter-related maintenance, service connections and service disconnections, meter re-reads, and other meter-related activities, including revenue recovery services to prevent unaccounted for energy or loss from theft and diversion. This group also provides meter engineering services and operates a testing and repair facility for metering and distribution controls. That facility also repairs and certifies meter test equipment when necessary.

Q. ARE THESE MEASUREMENT SERVICES REASONABLE AND NECESSARY FOR UTILITY OPERATIONS?

A. Yes. Oncor provides measurement services pursuant to Public Utility Regulatory Act § 39.107. These services are both reasonable and necessary.

Q. PLEASE EXPLAIN HOW ONCOR'S MEASUREMENT SERVICES HAVE CHANGED SINCE THE COMPLETION OF ONCOR'S AMS DEPLOYMENT.

A. Oncor's deployment of AMS had both immediate and long-term impacts on Oncor's measurement services and the cost of those services. As expected, using AMS has enabled Oncor to perform several meter-related tasks remotely instead of sending employees to the customer's location. For example, Oncor remotely worked an average of 11,000 service orders

each workday in 2021 through AMS instead of sending field personnel to the customer's location.

After the completion of AMS deployment, our focus shifted from meter deployment to refining and improving the performance of the AMS network, the delivery of information to the ERCOT market, data analytics (including theft detection and incipient outage detection), and Oncor's data management practices. In addition, we continued to refine the interaction of Oncor's AMS with Oncor's Outage Management System ("OMS") and focused on the development of the operational processes necessary to use the outage data from the AMS meters as a real-time operational tool.

Having Oncor's AMS integrated with its OMS has benefited Oncor's system service quality and reliability, increased situational awareness when responding to outage conditions, and enhanced operational actions to respond quickly with restoration efforts without requiring a customer-initiated outage report.

Oncor also uses AMS data and weather data to monitor and predict asset health. Oncor's Distribution Operators use this data to troubleshoot potential issues before sending Oncor resources to perform repairs. By using AMS data, Distribution Operators can discern when a system component is not performing as originally intended. Detecting these type of performance issues early enables Oncor to replace or repair the equipment before an outage occurs and address the issue in a timely scheduled manner.

Advanced use of AMS data also helps Oncor with its distribution planning and real-time operations via the Distribution Operations Centers. AMS data is utilized to (1) develop a more accurate Distribution Planning Model, which helps ensure that we have adequate capacity to meet the peak demand, and (2) increase the accuracy of our distribution network connectivity model, which shows the meter-to-distribution transformer relationship and provides phasing and topological information. Having a

more accurate network connectivity model enables Oncor to operate and maintain its distribution system more safely and effectively during real-time operations.

As a result of AMS, Oncor now has significantly greater ability to perform important analytics work that enhances situational awareness, reliability, service quality, and customer service. The testimony of Company witness Mr. Hagen Haentsch provides more detail about the data analytics Oncor is able to perform using AMS data.

Q. DO ONCOR'S CUSTOMERS BENEFIT FROM THIS TRANSFORMATION OF ONCOR'S MEASUREMENT SERVICES?

A. Yes, Oncor's customers benefit in a number of ways. They benefit from the lower cost of meter reading and meter-related services enabled by AMS. Meter-reading savings achieved through AMS deployment were incorporated into Oncor's rates in Oncor's last base-rate case, Docket No. 46957. Customers also continue to benefit from Oncor being able to significantly reduce its charges for services that would have otherwise required sending an employee into the field, such as the service charges for disconnecting and re-connecting service. For example, today, when a customer with a standard meter (AMS meter) requests an out-of-cycle meter read for the purpose of a self-selected switch, the charge to the customer is 15 cents. But if the customer does not have a standard meter, the cost for a field service representative to travel to the customer's location to read the meter is $19.70.

Customers also benefit from Oncor's having an enhanced understanding of its system health and performance. For example, as I discuss in more detail below, service outages may be avoided when equipment is replaced on a more planned basis as enabled by AMS.

Q. DOES AMS AFFECT HOW ONCOR COMMUNICATES WITH CUSTOMERS?

A. Yes. AMS has allowed Oncor to improve the way we communicate with customers. As I mentioned above, Oncor is able to restore service in many instances without receiving a customer-initiated outage report, which alleviates the need for customers to report whether their power is out or has been restored. AMS also allows Oncor to provide certain services more quickly for customers, such as meter reads.

Having AMS also provides the Company with more detailed outage information, which enables us to provide better information to customers related to outages. Through technology deployments of the "My Oncor Alerts" application, Oncor has created a method for allowing customers to designate their communication preferences for receiving the information they want to receive, such as information related to the status of restoration efforts and service requests, which can be delivered proactively through the customer's preferred communication channels of voice, text, or email.

We have also created the "MyOncor" customer application, which provides a fast and simple way for customers to report outages, downed wires, or streetlight outages. This application also allows Oncor to provide information directly to customers, including an estimate of when the Company expects to restore power during service interruptions. The MyOncor application also allows Oncor to communicate proactively with customers when Oncor will be at their location to perform work, such as a meter replacement activity.

Q. DOES AMS HELP ONCOR IDENTIFY HOW THE DISTRIBUTION SYSTEM IS OPERATING?

A. Yes. As I mentioned above, AMS data includes information about how the distribution system is operating. In addition to outage data, AMS data allows us to identify power quality and equipment problems before they become an outage. For example, we use AMS data to identify transformers demonstrating incipient failure modes through AMS voltage analysis, which allows us to proactively replace equipment prior to its causing an unplanned

outage. Since December 31, 2016, over 3,800 transformers showed signs of failure, and by using AMS data, Oncor was able to identify and address those transformers before they failed.

Thus, AMS has allowed us to detect and perform replacements of transformers, conductor, and connectors on a planned schedule before they fail, which reduces unplanned outages for customers and optimizes field resource allocations because the equipment can be replaced during normal business hours even before the customer is affected.

Q. HAS AMS IMPACTED ONCOR'S MARKET PERFORMANCE?

A. Yes. Generally, AMS has allowed Oncor to execute market service requests more quickly, which makes the market perform more efficiently and effectively. As I mentioned above, AMS also allows Oncor to perform certain services for customers more quickly than would have been possible before it was deployed. For example, because of AMS, Oncor can re-connect a customer within two hours of receiving a request for reconnection from the customer's REP and within one hour of receiving a request for reconnection from a prepay customer's REP. Oncor can also initiate new service at an existing location and execute REP switches generally on the same day the request is received.

AMS has also allowed Oncor to transition business customers from older interval data recorder meters to advanced meters, which may allow the customer's usage to be transmitted to ERCOT on a daily basis rather than a monthly basis. By receiving the data daily rather than monthly, ERCOT is able to settle the customer's usage in the *initial* settlement of the wholesale electric energy market with actual data rather than ERCOT-estimated profile data, and customers and their REPs are able to have daily access to interval data at Smart Meter Texas.

Q. HAS ONCOR IMPLEMENTED ANY OTHER NEW TOOLS THAT HELP PROVIDE MEASUREMENT SERVICES?

A. Yes. As described in the testimony of Company witness Ms. Malia A. Hodges, Oncor has implemented a new customer service management functionality through its Customer Care and Billing System ("CC&B"). The Distribution and Measurement Services organizations use the CC&B to create and complete various field activities and customer service orders, such as meter tampering investigations, meter testing, and installation of new service connections, and ensure that the associated billing, if any, is performed. The new customer service management functionality has also been very helpful by providing the capability for a field technician to quickly access historical information related to Oncor's activities at a specific premise.

Q. WERE AMS AND CC&B HELPFUL DURING AND AFTER WINTER STORM URI?

A. Yes. The AMS network allowed us to quickly determine whether a customer outage was caused by a load-shed event or was caused by something unrelated. With this ability, we were able to target field restoration activities (damage evaluation and repair resources) on those outages that were not caused by load-shed events.

After the event, Oncor was able to use the inherent technology of AMS as well as its tight integration with the CC&B and other systems to appropriately bill customers and provide market settlement data. Oncor utilized technology to identify missing billing reads and 15-minute interval meter data and acquire the actual reads after the event. This allowed Oncor to discontinue sending estimated invoices to REPs for all rate classes during the event, and Oncor was able to cancel-rebill invoices utilizing actual reads for any previously billed estimated invoices during the event.

Also, a large number of non-residential customers are billed by Oncor using monthly non-coincidental peak kilowatt demands ("NCP Demand"). As a result of the winter storm, many of these customers would have set an unprecedented high actual NCP Demand during the storm

period. Oncor was able to utilize the technology integration of its AMS and CC&B systems to eliminate any new peak demands reached during the storm period from the customer's billing of Oncor charges. This resulted in an approximately $3.3 million aggregate reduction in Oncor charges associated with customer demand billing for the associated storm period. The Commission approved this approach in Docket No. 51812 on March 5, 2021 when it approved the requests for good cause exception to the applicable tariff provisions filed by Oncor, AEP Texas Inc., CenterPoint Energy Houston Electric, LLC, and Texas-New Mexico Power Company.

V. BILLING SERVICES PROVIDED BY ONCOR

Q. PLEASE DESCRIBE THE BILLING SERVICES ONCOR PROVIDES.

A. The Revenue Management group within my organization is responsible for ensuring that Oncor accurately and timely bills REPs and that Oncor collects the amounts owed by REPs. This group is also responsible for resolving any issues that arise related to billing. We also must ensure accurate posting of payments that are sent to Oncor, such as payments related to meter tampering and payments for contributions in aid of construction made by customers. This group is also responsible for performing ongoing monitoring and analysis of risks to Oncor's end-to-end meter-to-cash workflow and ensuring timely and accurate reporting, reconciling, and balancing of Oncor's revenue and cash. In addition, this group is responsible for monthly, quarterly, and annual Sarbanes-Oxley financial reporting and controls.

Q. ARE THESE ACTIVITIES REASONABLE AND NECESSARY?

A. Yes. For the ERCOT market to function appropriately, all transmission and distribution utilities are required to provide accurate and timely billing to REPs. Just like any other business, Oncor must also ensure that all bills are collected and that all cash received is appropriately booked. To remain a strong utility, Oncor must also monitor its revenues and comply with all

financial reporting required by law. Thus, in my opinion, all of the activities I described above are both reasonable and necessary.

VI. REASONABLENESS AND NECESSITY OF O&M EXPENSES ASSOCIATED WITH MEASUREMENT AND BILLING SERVICES

Q. WHAT WERE THE O&M EXPENSES INCURRED BY ONCOR DURING THE TEST YEAR 2021 FOR MEASUREMENT AND BILLING?

A. The O&M expenses that Oncor incurred during the test year for measurement and billing were $45.8 million.

Q. WERE THOSE O&M EXPENSES REASONABLE AND NECESSARY?

A. Yes. Oncor's measurement and billing O&M expenses are reasonable and necessary and should be recovered in Oncor's rates. Oncor incurred these costs to perform the measurement and billing services that are necessary to ensure that the delivery of electricity is appropriately metered and then correctly billed to REPs and ultimately customers. As I have described above, Oncor has taken steps to ensure that it performs those necessary services efficiently and effectively.

A. Cost Controls

Q. PLEASE DESCRIBE THE COST CONTROLS MEASUREMENT & BILLING USES WITH RESPECT TO ITS O&M.

A. The Measurement & Billing group utilizes cost controls that span labor, hardware, and business process automation. For labor, we monitor our staffing for heavy volume workload periods that are driven by environmental factors (*i.e.*, weather and time of year) and utilize third-party contractor labor to assist with the increased work demand for short periods of time. This allows us to keep our workforce engaged on the highest priority of work throughout the year.

We also utilize longer term hardware contract agreements that include non-variable pricing across the term length of the agreement. This keeps pricing stable as market and supply chain conditions change annually.

Another important cost control we implement in Measurement & Billing is our heavy use of automated business processes and advanced analytics to streamline operations and address new tasks that would require additional labor. We have made many advancements in our daily revenue management operations that include automation of tasks that reduce billing, audit, and high/low usage exceptions, as well as automation of the processes utilized to implement rate changes.

VII. WORKING METER RESERVES ARE USED AND USEFUL IN PROVIDING SERVICE

Q. WHAT PROCESS DOES ONCOR USE TO DETERMINE HOW MANY METERS IT NEEDS TO PURCHASE EACH YEAR?

A. Each year, Oncor conducts a detailed review of the growth experienced within its service territory, the number and type of meters that have failed over the course of the year, and any other unique circumstances that may impact Oncor's meter requirements. As part of Oncor's detailed annual review, Oncor determines the number and type of meters it will need to keep on hand in 58 service center storerooms across its large service territory. Oncor also determines the number and type of meters needed to keep the approximately 833 measurement and distribution field resources who are responsible for keeping meters properly stocked. These meter needs are monitored throughout the year, and purchases are adjusted as needed. This strategy allows Oncor to promptly respond to customers' service needs and comply with its tariff requirements.

Q. PLEASE EXPLAIN HOW GROWTH INFLUENCES ONCOR'S METER PURCHASING NEEDS.

A. Oncor continues to experience significant load and premise growth in parts of its service territory. Between January 1, 2017 and December 31, 2021, Oncor averaged over 72,000 new authorized locations each year. In 2021 alone, Oncor added over 79,000 new authorized locations. As Oncor continues to serve new premises, it must purchase and install new meters

at those new locations and maintain a reserve of meters should any existing meters need to be replaced.

Q. WHEN A METER FAILURE OCCURS, HOW DOES ONCOR RESPOND?

A. Oncor's meters continually perform a self-diagnostic health check. As part of this process, each meter is programmed to send event and/or alarm notifications to the Company that identify any issue with the meter's ability to function properly. When event or alarm notifications indicating a failure are received from a meter, Oncor replaces the existing meter as soon as practical.

Q. ARE THERE ANY OTHER REASONS THAT ONCOR MAY NEED TO REPLACE A METER?

A. Yes. There are other reasons for replacing meters, such as meter tampering, which is an issue that has been recognized by the Commission and that it has addressed with specific rules. Also, weather-related impacts or vandalism may cause Oncor to replace a meter to ensure continuity and accurate measurement of electric service to the customer. Additionally, meters may be replaced due to equipment either being stolen, damaged, or not fully functioning due to a component or communication failure.

Q. DOES ONCOR REPLACE METERS IN A TIMELY MANNER?

A. Yes, it is Oncor's standard practice to take prompt action on all meter replacements. Oncor's customers and market participants expect accurate metering for billing. In fact, under Sections 4.7.2 and 4.7.2.2 of Oncor's Tariff for Retail Delivery Service, the Company is precluded from performing estimated meter reads for more than three consecutive months before performing an actual meter read, except in cases where the retail customer has failed to provide access to the meter.

Q. DOES ONCOR PURCHASE METERS IN ADVANCE OF INSTALLATION AND ENERGIZATION?

A. Yes. Oncor maintains a working reserve of meters to ensure customer and market participant requirements are met given variable manufacturing lead

times, customer service dates, and replacement needs. Before the COVID-19 pandemic, the typical lead time to obtain meters from the manufacturer was approximately 20 weeks. During the COVID-19 pandemic, however, the lead time for meters grew to as long as 52 weeks. If specialty meter items are required, the lead time can be even longer. Another factor that impacts meter lead times is manufacturer plant closings for maintenance and holidays at the end of the year. Other factors such as customer timelines can also impact the number of meters Oncor maintains in working reserves at a given time. For example, Oncor has high-rise apartment development projects for which the currently expected due dates for service can extend six months to a year beyond the deadline originally anticipated. To avoid the potential delay in being able to initiate service, Oncor orders meters and holds them for the project based on the original anticipated customer service date, without knowing whether (or for how long) the date may be extended due to delays resulting from customer circumstances.

Q. DOES ONCOR IMMEDIATELY INSTALL METERS WHEN THEY ARE RECEIVED FROM THE MANUFACTURER?

A. No. Once meters are received from the manufacturer at the Company's centralized systems operating center, the devices must be added to the Company's meter management system and sample tests conducted before making the units available for installation. The meters are then deployed to the service centers and field resources described above. Each service center has an established target minimum and maximum reserve level necessary to provide timely service to customers based upon historical and projected meter needs. Oncor monitors the target reserve levels throughout the year and adjusts them as needed to ensure that reserves continue to be appropriate.

Q. WERE ONCOR'S METER INVESTMENTS THAT WERE HELD IN RESERVE AS OF THE END OF THE TEST YEAR USED AND USEFUL IN THE COMPANY'S PROVISION OF ELECTRIC SERVICE?

A. Yes. Given the lead time needed for purchasing meters from the manufacturer and the need to have meters on hand throughout the Company's service territory for the purposes described above, having additional meters in reserve, on a day-to-day basis, is critical to Oncor's provision of electric service. The reliability and overall service quality of Oncor's distribution system would be greatly impaired if Oncor purchased only the exact number of meters it expected to need to install and energize at any particular point in time. By purchasing and maintaining adequate working reserves of meters and meter-related hardware to address meter failures, outages, or new customer installations in the near-term, Oncor is able to provide adequate and continuous service to the public and, therefore, the associated investment is used and useful. Company witness Mr. W. Alan Ledbetter addresses the appropriate accounting for meters and metering equipment.

VIII. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. In my testimony, I describe the measurement services provided by the Company and explain how Oncor's deployment of AMS benefitted customers and transformed how Oncor provides measurement and billing services to customers. I also explain how Oncor's AMS is integrated with other critical technology systems and how that integration has improved the health of Oncor's system, Oncor's market performance, and Oncor's communications with customers. I further explain how AMS contributed to Oncor's performance during and after Winter Storm Uri. Through this testimony, I support the reasonableness and necessity of Oncor's O&M expenses related to measurement and billing and the need for Oncor to maintain an adequate meter reserve to ensure customer and market participant needs are met.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

AFFIDAVIT

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Daniel E. Hall, who, having been placed under oath by me, did depose as follows:

My name is Daniel E. Hall. I am of legal age and a resident of the State of Texas. The foregoing direct testimony offered by me is true and correct, and the opinions stated therein are, to the best of my knowledge and belief, accurate, true and correct.

Daniel E. Hall

SUBSCRIBED AND SWORN TO BEFORE ME by the said Daniel E. Hall this 15th day of April, 2022.

MICHELE M. GIBSON
Notary Public, State of Texas
Comm. Expires 06-30-2022
Notary ID 575631-8

Notary Public, State of Texas

2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
DANIEL E. HALL

Mr. Hall has no supporting workpapers for his direct testimony.

INDEX TO THE DIRECT TESTIMONY
OF W. ALAN LEDBETTER, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC

Exhibit WAL-5	Summary of Net Regulatory Assets and Liabilities
Exhibit WAL-6	AP&P 50-02 Allowance for Funds Used During Construction
Exhibit WAL-7	AP&P 50-01 Capitalization of Indirect Construction Overhead
Exhibit WAL-8	Testimony Glossary of Abbreviations

DIRECT TESTIMONY OF W. ALAN LEDBETTER

I. POSITION AND QUALIFICATIONS

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

A. My name is W. Alan Ledbetter. My business address is 1616 Woodall Rodgers Freeway, Dallas, Texas 75202. I am Vice President and Controller of Oncor Electric Delivery Company LLC ("Oncor" or "the Company").

Q. PLEASE DISCUSS YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor's degree in Business Administration – Accounting from the University of Texas at Arlington and a Master of Business Administration degree, with a minor in Finance, from Texas A&M University–Commerce. I have been employed in a variety of accounting, finance, and regulatory roles in the electric utility industry for 41 years. I began my business career in a general accounting role with Texas Electric Service Company (an Oncor predecessor) and later held positions in the organization's internal auditing and regulatory services departments. Upon restructuring of the former separately operating companies of Texas Utilities Company in 1984, I held a variety of positions in the corporation's business services affiliate, primarily in business planning and analysis, regulatory accounting support, and internal auditing. In 2004, I transferred to Oncor as a senior project manager within the Controller's organization, with primary responsibilities related to regulatory accounting analysis and support. In 2008, I was named Manager, Revenue Forecasting for the Company. In 2013, my responsibilities were expanded, and I was named Director, Planning and Economic Analysis. In February 2019, I was named as Oncor's Assistant Controller and in July 2021 was elected to my current position of Oncor Vice President and Controller, effective September 1, 2021.

Q. PLEASE DESCRIBE THE PRIMARY RESPONSIBILITIES IN YOUR CURRENT POSITION.

A. As the Oncor Vice President and Controller, I serve as the Company's principal accounting officer. In this role, I direct the activities of Oncor's financial reporting, general accounting, property and construction accounting, accounts receivables and payables, revenue accounting, tax accounting, field operations accounting, and accounting systems teams. These organizations are responsible for ensuring that financial information is collected, summarized, and reported in accordance with generally accepted accounting principles in the United States ("US GAAP"). In addition, Oncor's accounting organization ensures that the books and records of the Company are maintained in a manner consistent with sound policies, procedures, and practices that support accurate and timely delivery of the Company's regulatory reporting requirements established by the Public Utility Commission of Texas ("Commission") and other regulatory bodies.

Q. DO YOU HOLD ANY CERTIFICATIONS?

A. Yes. I am licensed as a Certified Public Accountant in the State of Texas and hold the Chartered Global Management Accountant designation through my membership in the American Institute of Certified Public Accountants.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE COMMISSION OR OTHER REGULATORY AUTHORITIES?

A. Yes. I testified before the Commission in Docket No. 35717 and pre-filed direct testimony in Docket Nos. 38929, 46957, 48231, 49402, 50734, and 51996. In general, my prior testimony before the Commission has addressed matters concerning interim distribution investment updates, regulatory assets, working capital components, miscellaneous revenues, adjustments to historical billing units, and the sale of electric plant. In addition, I have provided oral testimony on behalf of Oncor relating to the State Comptroller's Property Tax Assistance Division's determination of the market value of Oncor's taxable tangible personal property in Texas (State

Office of Administrative Hearings Docket Nos. 304-17-4452.PVS and 304-21-3344.PVS).

II. PURPOSE AND OVERVIEW OF DIRECT TESTIMONY

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING.

A. In general, my direct testimony addresses three major elements of the Company's rate filing. The first major element involves the financial and accounting information reflected in Oncor's consolidated historical books and records that serve as the foundation upon which the determination of the Company's cost of service must be constructed. Section III. of my direct testimony addresses significant financial reporting and accounting practices of the Company to appropriately reflect the Company's results of operations and reporting of financial condition in accordance with US GAAP governing rate-regulated operations and the requirements of the United States Code of Federal Regulations, Title 18, Chapter I – Federal Energy Regulatory Commission, Department of Energy ("FERC"), Subchapter C, Part 101 – Uniform System of Accounts Prescribed for Public Utilities and Licensees subject to the Provisions of the Federal Power Act ("USOA"). Throughout my direct testimony, I use the abbreviation "FERC A###" to refer to a specific account from the USOA (*e.g.*, FERC A101 represents USOA account number 101 - *Electric Plant in Service*). Finally, Section III. of my direct testimony provides an overview of how the Company's financial information is functionally assigned and presented in the schedules prescribed by the Commission's Transmission & Distribution (TDU) Investor-Owned Utilities Rate Filing Package for Cost-of-Service Determination – 2020, adopted by the Commission in Project No. 49199 ("RFP").

The second major element of the Company's rate filing that I address is Oncor's rate base. Section IV. of my direct testimony serves to consolidate the various components of the adjusted net rate base of

invested capital that Oncor is requesting in this proceeding. This testimony addresses the various components of the rate base that I personally sponsor and summarizes the rate base elements sponsored by other Oncor witnesses to reflect the combined net total of invested capital. In addition, I will address known and measurable adjustments to the test-year-ending balances of the components of net rate base. In the last part of Section IV., I summarize the resulting functionalized components of Oncor's rate base.

Finally, the third major element of Oncor's rate filing that I address is the requested cost of service. Section V. of my direct testimony addresses the Company's 2021 test-year levels and functionalization of operating expenses, as well as notable known and measurable adjustments reflected in the requested cost of service in this proceeding. Together with the return on invested capital (summarized in Section IV.H. of my testimony), Section V. indicates that Oncor's requested cost of service, as adjusted, totals $5,824 million for its combined transmission and distribution ("T&D") operations, including the $13.3 million of affiliate wholesale distribution substation service summarized in column (k) of RFP Schedule I-A-1.

Q. WHAT HISTORICAL PERIOD IS ONCOR'S COMBINED COST OF SERVICE BASED UPON?

A. The results of operations reflected in Oncor's RFP in this proceeding are derived from the Company's books and records for the 12 calendar month period ended December 31, 2021. The components of rate base, as adjusted, reflect balances of assets and liabilities at the end of the test-year period (*i.e.*, December 31, 2021) or, for certain working capital assets, the average of the month-end balances of the 13-month period ended December 31, 2021. Please note that the terms "2021 test-year" and "12-months ended December 31, 2021" are used interchangeably throughout my direct testimony. Likewise, the terms "2021 test-year-end" and "December 31, 2021" carry the same meaning throughout my direct testimony.

Q. WHICH RFP SCHEDULES ARE YOU SPONSORING IN THIS PROCEEDING?

A. My Exhibit WAL-1 provides a listing of the RFP schedules that I sponsor or co-sponsor. The RFP schedules that I sponsor or co-sponsor, my direct testimony, and the attached exhibits, as well as all associated workpapers, were prepared by me or under my direction, supervision, or control, and are true and correct.

III. FINANCIAL REPORTING AND ACCOUNTING PRACTICES

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S FINANCIAL REPORTING AND ACCOUNTING PRACTICES.

A. Oncor's financial reporting reflects the consolidated balance sheets of Oncor and its subsidiaries, the related consolidated statements of income, comprehensive income, cash flows, and membership interests, and the related notes to consolidated financial statements (collectively referred to as the "financial statements"). The Company's financial statements are prepared in accordance with US GAAP governing rate-regulated operations. In addition, to facilitate accounting of its rate-regulated operation, Oncor also maintains its books and records in accordance with the USOA, as prescribed for major electric utilities by 16 Texas Administrative Code ("TAC") § 25.72. A listing of the USOA Balance Sheet Chart of Accounts, Electric Plant Accounts, and Income Chart of Accounts is provided in my Exhibit WAL-2. Despite a few notable differences that will be addressed later in my direct testimony, US GAAP and the USOA provide a consistent framework for developing accounting policies and practices to gather, summarize, and report financial information to the public through its filings with the United States Securities Exchange Commission ("SEC") and the Commission.

Preparation of the financial statements requires management to make estimates and assumptions about future events that affect the reporting of assets and liabilities at the balance sheet dates and the

reported amounts of revenue and expense. In the event such estimates or assumptions prove to be different from actual amounts, adjustments are made in subsequent periods to reflect more current information. During the 2021 test-year, there were no adjustments made to previous estimates or assumptions that had a material impact on the Company's financial statements. Of course, non-material adjustments are common and recorded as revised information is learned. For example, as addressed later in my direct testimony (see Section IV.E.12.), during our 2021 accounting close, we determined that certain intangible assets had not been timely retired, Oncor made correcting entries to adjust the Company's financial records to reflect the effects on the financial statements, including recognition of a regulatory liability that arose as a result of the timely retirement oversight.

In addition, Oncor has developed an internal control structure to meet internal and external requirements and promote the Company's compliance with US GAAP and applicable laws and regulations. Oncor's standards of internal control and disclosure controls are designed to provide complete, reliable, and timely operational and financial reporting, as well as support accurate and objective development of business records and information to allow the fair presentation, in all material respects, of the Company's financial condition, results of operations, and cash flows, as presented in Oncor's consolidated financial statements and footnotes. Significant portions of my direct testimony regarding Oncor's financial reporting and accounting practices have been derived from Oncor's Form 10-K – Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 ("SEC Form 10-K") For the Fiscal Year Ended December 31, 2021, as well as the SEC Form 10-K filings for the fiscal years ended December 31, 2020 and December 31, 2019, complete copies of which are available in the Investor Relations section of the www.oncor.com web-site or on the Commission's filing interchange [see Project No. 18688, Item Nos. 302

(2019 SEC Form 10-K), 320 (2020 SEC Form 10-K), and 330 (2021 SEC Form 10-K).]

A. Consolidated Financial Statements

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S CONSOLIDATED FINANCIAL STATEMENTS.

A. Oncor is a majority-owned subsidiary of Oncor Electric Delivery Holdings Company LLC ("Oncor Holdings"), which is indirectly and wholly owned by Sempra Energy ("Sempra"). Oncor Holdings owns 80.25% of Oncor's outstanding membership interests, and Texas Transmission Investment LLC ("TTI") owns the remaining 19.75%. For external financial reporting, Oncor is managed as an integrated business and, consequently, has only one reportable segment. Also for external reporting, Oncor's consolidated financial statements include the results of its wholly owned indirect subsidiary Oncor Electric Delivery Company NTU LLC ("Oncor NTU") (formerly known as Sharyland Distribution & Transmission Services, L.L.C. ("SDTS"), an indirect subsidiary of InfraREIT, Inc., which was acquired by Oncor in May 2019).

As will be discussed further in my direct testimony, because Oncor is subject to rate regulation, its financial statements reflect regulatory assets and liabilities in accordance with accounting standards related to the effect of certain types of regulation. In general, regulatory assets and liabilities represent probable future revenues that will be recovered from or refunded to customers through the rate-making process based on the Public Utility Regulatory Act, Title II, Texas Utilities Code (as amended) ("PURA") and/or the Commission's orders, precedents, or substantive rules.

B. Oncor Electric Delivery Company NTU LLC

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR NTU.

A. As more thoroughly addressed in the direct testimony of Oncor witness Mr. Wesley Speed, Oncor NTU became a wholly owned, indirect subsidiary of Oncor with the completion of Oncor's acquisition of all of the equity interests

of InfraREIT, Inc. and its subsidiary InfraREIT Partners, LP ("InfraREIT"), which was approved by the Commission in Docket No. 48929 ("InfraREIT Acquisition"). The end result of the InfraREIT Acquisition is that Oncor now indirectly owns the electric transmission assets in the north, central, west, and panhandle regions of Texas, comprising about 1,575 miles of transmission lines within the Electric Reliability Council of Texas, Inc. system ("ERCOT"), that previously were held by SDTS and Sharyland Utilities, L.P. ("SU"), as well as wholesale distribution substation assets.

Q. WILL THE CONSOLIDATION, FOR RATEMAKING PURPOSES, OF ONCOR NTU AND ONCOR IN THIS PROCEEDING ELIMINATE THE NEED FOR ONCOR NTU TO EXIST AS A SEPARATE ENTITY?

A. No. The Docket No. 48929 Order (see Finding of Fact No. 58) provides that it is reasonable that Oncor NTU apply to be merged into Oncor once all assets acquired in the InfraREIT Acquisition are fully depreciated. However, from a practical standpoint, such an event is not expected to occur for decades. In his direct testimony in Docket No. 48929, Oncor witness Mr. Salvatore P. Montalbano explained that Oncor NTU would need to be maintained at a separate Oncor subsidiary level in order to avoid income tax impacts that would function to increase the combined rate base of Oncor and Oncor NTU. In essence, the corporate structure where Oncor NTU is maintained as a wholly owned, indirect subsidiary of Oncor eliminates the step-up in basis to fair market value that would occur if the transaction had been structured as a straight asset sale and, therefore, exists for the benefit of electricity delivery customers.

Q. HOW DID ONCOR ACCOUNT FOR THE EFFECTS OF THE INFRAREIT ACQUISITION?

A. Oncor accounted for the InfraREIT Acquisition as a business acquisition with identifiable assets acquired and liabilities assumed recorded at their estimated fair values on the May 16, 2019 closing date. For assets and liabilities that are included for Commission cost-based regulatory rate-

setting processes, the Company recorded estimated fair values equal to the regulatory book carrying values consistent with US GAAP, the USOA (*e.g.*, see Electric Plant Instructions No. 2.A.), and electric utility industry practice. We began reporting the results of the operations of Oncor NTU in our consolidated financial statements beginning on the transaction closing date. Consequently, the 2021 test-year reflects a full twelve months of costs related to Oncor NTU operations.

Q. DID THE CLOSING OF THE INFRAREIT ACQUISITION RESULT IN THE RECOGNITION OF ANY GOODWILL?

A. Yes. Goodwill, as defined in FASB Topic 350, is an asset representing the future economic benefits arising from other assets acquired in a business combination. In essence, goodwill represents the premium or difference between amounts paid to acquire assets and the fair value of the acquired assets. Goodwill of $676 million arising from the InfraREIT Acquisition is attributable to the net assets acquired that expand Oncor's transmission footprint and furthers the Company's ability to support ERCOT market growth. Consistent with the commitment reflected in the Commission's Order in Docket No. 48929 (see Finding of Fact No. 86), Oncor will not seek recovery of any of the goodwill associated with the InfraREIT Acquisition and has not included this asset in the calculation of rate base in this proceeding. It should also be noted that none of the goodwill provides a tax benefit in the rate-making process.

Q. ARE THE TRANSACTION COSTS ASSOCIATED WITH THE INFRAREIT ACQUISITION REFLECTED IN THIS RATE PROCEEDING?

A. No. Consistent with the commitments reflected in the Commission's Order in Docket No. 48929 (*e.g.*, see Finding of Fact Nos. 88-89), the acquisition costs incurred in the transaction were recorded to operations and maintenance expense and other deductions (*i.e.*, below the line). Further, the majority of the transaction costs were recorded in 2019 and would not be reflected in the 2021 test-year amounts.

Q. APART FROM THE INITIAL BUSINESS RECORDING OF THE INFRAREIT ACQUISITION, ARE THERE OTHER FINANCIAL REPORTING AND ACCOUNTING ISSUES RELATED TO ONCOR NTU?

A. Yes. In connection with closing the InfraREIT Acquisition, Oncor extinguished all outstanding debt of InfraREIT and its subsidiaries through repaying $602.5 million principal amount of InfraREIT subsidiary debt and exchanging approximately $350.8 million principal amount of outstanding InfraREIT subsidiary senior notes for a like principal amount of newly issued Oncor secured senior notes. Oncor received no proceeds from the issuance of the new Oncor notes, and the exchanges were accounted for as debt modifications. Consequently, there is no external capital reflected on the books of Oncor NTU. Thus, for accounting purposes, Oncor NTU capitalization reflects a long-term note payable to affiliate (*i.e.*, Oncor) and equity owned by Oncor, which offset in consolidation. Because there is no external outstanding debt at Oncor NTU, this wholly owned subsidiary of Oncor has not realized any debt issuance savings following the closing of the InfraREIT Acquisition.

In addition, consistent with the Commission's Order (*e.g.*, see Finding of Fact Nos. 55-60 and Ordering Paragraph No. 17) and the agreement of the signatories in the Docket No. 48929 proceeding, Oncor consolidates Oncor NTU into its regulatory reporting filings (*e.g.*, Earnings Monitoring Report). Likewise, beginning with this immediate base-rate case, Oncor NTU will also be consolidated into rate-making proceedings. To facilitate consistency in its regulatory reporting and filings, Oncor has applied its accounting policies and procedures to Oncor NTU. As described above, because Oncor NTU will continue to exist as a separate entity following the implementation of rates from this proceeding, it will be necessary to continue to maintain separate books and records for this subsidiary, including an accounting pro-ration of wholesale-transmission-

service rate revenues and the recording of affiliate wholesale distribution substation service and Operation and Maintenance ("O&M") Services.

Q. DID THE ADOPTION OF ONCOR'S ACCOUNTING POLICIES AND PROCEDURES FOR ONCOR NTU IMPACT THE FINANCIAL CONDITION OF THE COMPANY?

A. No. There are no known material variations in the Company's financial position or the results of its operations and its cash flows resulting from the application of Oncor's accounting and financial reporting practices to the recording and management of the assets and operations acquired in the InfraREIT Acquisition. While no exhaustive analysis of the former accounting and reporting policies and procedures of InfraREIT has been conducted, an example of an Oncor practice that has been adopted involves extending Oncor's self-insurance program for major property or liability losses not covered by commercial insurance to cover Oncor NTU (as discussed in the direct testimony of Oncor witness Mr. Ashley Thenmadathil). Further, consistent with Finding of Fact No. 93 in the Docket No. 48929 Order, Oncor NTU major capital expenditure projects reflected in FERC A107 (*Construction Work in Progress)* at the time of the InfraREIT Acquisition were transferred to Oncor for completion and subsequent placement in service. This asset transfer expressly included the Lubbock Power & Light ("LP&L") integration projects that were completed and energized during 2021.

Q. PLEASE DISCUSS ANY OTHER FACETS OF THE GOVERNANCE AND MANAGEMENT OF ONCOR NTU THAT SHOULD BE CONSIDERED.

A. Since 2007, various ring-fencing measures have been taken to enhance Oncor's credit quality and the separateness between the Oncor Ring-Fenced Entities (including Oncor and Oncor NTU, as well as Oncor's direct majority owner, Oncor Holdings) and entities with ownership interests in Oncor or Oncor Holdings. As agreed in the settlement and Commission Order in Docket No. 48929 (see Finding of Fact No. 80 and Ordering

Paragraph No. 21), Oncor NTU is governed and managed within the existing ring-fencing structure that governs Oncor.

In addition, coincident with the May 2019 mergers arising from the InfraREIT Acquisition, Sempra acquired an indirect 50% ownership interest in Sharyland Holdings, L.P., the parent of Sharyland Utilities, L.L.C. ("Sharyland"). As described in the direct testimony of Oncor witness Mr. Michael G. Grable, this transaction resulted in Sharyland becoming an affiliate of Oncor for purposes of the Commission's affiliate rules.

Also consistent with the Commission Order in Docket No. 48929 (see Finding of Fact Nos. 66-69 and Ordering Paragraph Nos. 19-20), Oncor provides certain operations services at cost with no markup or profit to both Sharyland and Oncor NTU, the latter of which has no direct employees. As more fully discussed in the direct testimonies of Oncor witnesses Mr. Collin M. Martin and Messrs. Speed and Grable, the provision of these operations services to Oncor NTU provided the Company with the ability to retire or repurpose certain duplicative electric plant in service acquired in the InfraREIT Acquisition (*e.g.,* former SDTS-owned transmission grid control center and related software, hardware, and communication assets).

Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY CONCERNING ONCOR NTU.

A. As a result of the InfraREIT Acquisition, Oncor NTU became an indirect wholly owned subsidiary of Oncor that is governed and managed within the Company's existing ring fence, providing assurance that the assets acquired in the transaction are operated and maintained in the same manner as Oncor's other T&D assets. The Company consolidates the results of its operations with those of Oncor NTU in the Company's external reporting and, as agreed to and ordered in Docket No. 48929, the Company's rate filing in this proceeding consolidates its operations with those of Oncor NTU for rate-making purposes. Accordingly, Oncor's accounting policies, procedures, and practices have been applied to Oncor

NTU to provide consistency in the determination of rate base and cost of service in this consolidated filing. However, to reflect transparency of the net rate base and operations of Oncor NTU, the schedules in this rate filing separately identify costs attributable to this wholly owned subsidiary and the legacy business functions (see No. 5 of the RFP General Instructions).

C. US GAAP and Rate Case Regulatory Presentation Differences

Q. PLEASE DISCUSS INSTANCES WHERE THE REQUIREMENTS OF US GAAP DIFFER FROM THE GUIDANCE REFLECTED IN THE USOA.

A. US GAAP itself recognizes the unique nature of rate-regulated businesses, whereby certain accounting practices that would not be allowed for non-regulated companies may be acceptable for accounting by utilities like Oncor [*e.g.*, deferral of incremental operating expenses arising from the Company's response to the 2020 outbreak of the novel Coronavirus Disease 2019 ("COVID-19")]. Accounting Standards Codification ("ASC") 980, "Regulated Operations," of the Financial Accounting Standards Board ("FASB") requires that Oncor reflect the effects of rate regulation on the Company's reporting of its results of operations and statements of financial position.

In general, US GAAP for rate-regulated businesses allow utilities to conform to utility accounting practices and reporting requirements prescribed by the USOA. Nonetheless, as I will describe below, there remain a few noteworthy issues that are presented differently in the Company's rate filing, when compared to its financial statements reflected in external reports (*e.g.*, SEC Form 10-K).

1. Federal Income Taxes

Q. PLEASE DESCRIBE HOW FEDERAL INCOME TAXES ARE REFLECTED IN ONCOR'S EXTERNAL FINANCIAL REPORTING AND IN THIS RATE FILING.

A. For purposes of federal income tax within the United States, Oncor is a partnership. However, as explained in the direct testimony of Oncor witness

Ms. Bonnie L. Clutter, Oncor participates in a Tax Sharing Agreement ("TSA") with Oncor Holdings, Sempra Texas Holdings Corp., and TTI that provides for the calculation of amounts related to income taxes for each of Oncor Holdings and Oncor as if these entities were taxed as corporations and requires payments to Oncor's owners determined on that basis. While partnerships are not subject to income taxes, in consideration of the presentation of our financial statements as an entity subject to cost-based regulatory rate-setting processes with such costs historically including income taxes, Oncor's financial statements present amounts determined under the TSA as "provision in lieu of income taxes" and "liability in lieu of deferred income taxes." For rate-making purposes, Oncor reports the amounts, and any adjustments thereto, reflected in the "provision in lieu of income taxes" as income tax expense and the amounts, and any adjustments thereto, in the "liability in lieu of deferred income taxes" as accumulated deferred income taxes ("ADIT").

Nonetheless, the determination of federal income taxes proposed in the Company's requested cost of service does not reflect the provision in lieu of income taxes recorded during its 2021 test-year. Instead, the regulatory practice of synchronizing the tax-deductible level of interest expense with the test-year-end level of invested capital results in a provision for income tax expense that is more representative of the costs that will be realized when new rates arising from this proceeding become effective. The test-year levels of income tax expense and ADIT, as well as known and measurable adjustments, including interest synchronization, are discussed in Ms. Clutter's direct testimony and are summarized in RFP Schedule II-E-3, which she sponsors.

2. Estimated Net Removal Costs

Q. PLEASE DESCRIBE HOW ESTIMATED NET REMOVAL COSTS ARE REFLECTED IN ONCOR'S EXTERNAL FINANCIAL STATEMENTS AND IN THIS RATE FILING.

A. At the 2021 test-year-end, Oncor's consolidated financial statements reflected a regulatory liability of $1,348 million related to its estimated net removal costs. As discussed in the direct testimony of Oncor witness Mr. Dane A. Watson, the Company collects estimated net asset removal costs through its allowed depreciation rates over the operating lives of the assets. Any net difference between realized removal costs and amounts collected through regulated rates is reflected in the Company's accumulated provision for depreciation of electric utility plant (FERC A108).

However, for purposes of reporting to (*e.g.*, annual earnings monitoring) and rate-making proceedings before the Commission, the regulatory liability reflected in external US GAAP reporting is reclassified from the regulatory liability to accumulated depreciation. This presentation in Oncor's RFP in this proceeding serves to reduce the Company's net rate base and is consistent with the past treatment of this regulatory liability from Docket Nos. 35717, 38929, and 46957, as well as Oncor's Transmission Cost of Service ("TCOS") and Distribution Cost Recovery Factor ("DCRF") interim update applications. It is also consistent with Oncor's reporting of estimated net removal costs in the Company's FERC Form No. 1 reporting.

3. Leasing Arrangements

Q. PLEASE DESCRIBE HOW CERTAIN LEASING ARRANGEMENTS ARE REFLECTED IN ONCOR'S EXTERNAL FINANCIAL REPORTING AND IN THIS RATE FILING.

A. In early 2016, the FASB issued Accounting Standards Update ("ASU") 2016-02, which created FASB Topic 842, "Leases" ("Topic 842"). Topic 842 amends previous US GAAP and requires balance sheet recognition of substantially all lease assets and liabilities, including operating leases. All of Oncor's existing lease obligations meet the definition of an operating lease. The Company's adoption of Topic 842 at the beginning of 2019 affects the Oncor balance sheet, because our contracts for various office space, service centers, fleet vehicles, communication towers, and

equipment storage locations are operating leases. In general, pursuant to Topic 842, Oncor's financial statements reflect a "right-of-use" ("ROU") asset related to the operating leases and a liability equal to the net present value of the lease payments. A lease exists when a contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. As of the lease commencement date, we recognize a lease liability for our obligation to make lease payments, which we initially measure at present value using our incremental borrowing rate at the date of lease commencement (unless the rate implicit in the lease is readily determinable). We determine our incremental borrowing rate based on the rate of interest that we would have to pay to borrow an amount equal to the lease payments on a collateralized basis over a similar term in a similar economic environment. We also record a ROU asset for our right to use the underlying asset, which is initially equal to the lease liability and adjusted for any lease payments made at or before lease commencement, lease incentives and any initial direct costs. As reflected in the consolidated balance disclosure in Oncor's 2021 Form SEC 10-K, at the end of the 2021 test-year, there was $146 million of operating lease ROU and other assets. Certain of our leases include options to extend the lease terms for up to 20 years, while others include options to terminate early. The ROU asset total is based on lease terms that may include such options to extend or terminate the lease when it is reasonably certain that we will exercise that option.

Operating lease liabilities are not classified as debt for US GAAP purposes under Topic 842 and, in general, are not treated as debt for regulatory purposes. Similarly, for rate-making purposes, these ROU assets generally are not reflected in Oncor's adjusted test-year-end levels of electric plant in service or other rate base components. Instead, the cost of service reflects the effects of annual lease expense on the adjusted test-year levels of operating costs.

Q. PLEASE DESCRIBE ANY EXCEPTIONS TO THE NORMAL REGULATORY TREATMENT OF ROU ASSETS.

A. As described in the direct testimony of Oncor witness Mr. Keith Hull, in late 2021, Oncor leased multiple mobile generation assets to aid the Company's ability to restore power after a widespread power outage event, as authorized by PURA § 39.918(b)(1). Pursuant to US GAAP, the lease associated with these mobile generation assets is classified as an operating lease and follows the Topic 842 accounting treatment described above. However, pursuant to the provisions in PURA § 39.918(j), these assets have been reclassified as financial leases in this rate proceeding to reflect the present value of future payments required under the lease in the Company's balance of invested capital (*i.e.*, rate base) and the long-term debt component of Oncor's capitalization and weighted average cost of capital calculation.

4. Retirement Benefits

Q. PLEASE DESCRIBE US GAAP CHANGES REGARDING DISCLOSURE OF CERTAIN RETIREMENT BENEFITS FOR EXTERNAL FINANCIAL REPORTING.

A. As reported in Oncor's 2018 SEC Form 10-K, which is available in the "Investor Relations" section of the www.oncor.com web-site or on the Commission's filing interchange (Project No. 18688, Item No. 275), Oncor adopted the FASB amendment to Topic 715, "Compensation – Retirement Benefits" arising from ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." For US GAAP purposes, Topic 715 requires the non-service cost components of net retirement benefit plan costs to be presented as non-operating in the income statement and prescribes that only the service cost component of net retirement benefit plan cost is eligible for capitalization as part of inventory or property, plant, and equipment. Oncor adopted this amendment to US GAAP at the beginning of 2018 and applied the income

statement presentation on a retrospective basis while the capitalization eligibility requirement was applied only on a prospective basis.

Q. PLEASE DISCUSS NET PERIODIC PENSION AND POSTRETIREMENT BENEFIT COST COMPONENTS AND WHAT IS MEANT BY THE TERM "NON-SERVICE COST."

A. As defined in Topic 715, components of net periodic pension and other postretirement costs include: (a) service cost; (b) interest cost; (c) actual return on plan assets; (d) gain or loss; (e) amortization of prior service cost or credit; and (f) amortization of the transition obligation or asset. Topic 715 defines service cost as the actuarial present value of benefits attributed to services rendered by employees during the period. Because the service cost (*i.e.,* the value of benefits attributed to services rendered by employees during the period) is the only component of pension and other postretirement plan costs that can be capitalized as part of inventory or property, plant and equipment, the application of Topic 715 results in Oncor's recording the non-service cost ("NSC") [*i.e.*, components (b) - (f) identified above] of plan costs in a regulatory asset instead.

Q. HOW DOES APPLICATION OF THE AMENDMENTS TO TOPIC 715 "COMPENSATION AND BENEFITS" AFFECT ONCOR AND RATE-MAKING?

A. For regulatory purposes, the USOA instructions provide that the labor costs (*e.g.*, pay and expenses) of employees engaged in construction work is "properly includable in the electric plant accounts" (*i.e.*, capitalization, see Electric Plant Instructions No. 3. *Components of construction cost*). Similarly, the definition of FERC A163 (*Stores Expense Undistributed)* provides that labor and expenses incurred in the operation of storerooms, including purchasing, storage, handling and distribution of materials and supplies ("M&S"), are appropriately added to the costs of M&S through a suitable loading charge (*i.e.*, capitalization). Such labor costs include both the service cost and NSC components of pension and other postretirement

plan costs. In general, for rate-making, Oncor continues to separately expense or capitalize, as appropriate, such NSC costs similarly to the recognized service costs, with the capitalized costs being depreciated or amortized ratably over the lives of the related assets. The NSC recognized in expense for rate-making purposes is reclassified as non-operating other deductions for external financial reporting.

The application of the amendments to Topic 715 complicates both US GAAP and regulatory reporting related to Oncor's pension and other postretirement benefit plan costs, but will not have an effect on the Company's rate-making process, results of operations, financial position, or net change in total cash flows. To be clear, PURA § 36.065 provides practical assurance of cost recovery of both service costs and NSC since the legislation provides both that: (a) pension and other postemployment benefit ("OPEB") costs found reasonable by the Commission be included in the rates of an electric utility; and (b) any difference between amounts approved in an electric utility's last general rate proceeding and the annual amount of such pension and OPEB costs as determined by actuarial or other similar studies shall be recorded in a reserve account (*i.e.*, a regulatory asset). Accordingly, for rate-making purposes, Oncor has not changed how it accounts for pension and OPEB service cost or NSC and continues to either expense costs as O&M or capitalize such amounts, as appropriate, to construction or inventory costs.

5. Unbilled Revenues

Q. PLEASE DESCRIBE THE ACCOUNTING PRACTICE RELATING TO THE RECOGNITION OF UTILITY REVENUES.

A. Oncor records revenue for delivery services under the accrual method. Revenues are recognized when delivery services are provided to customers on the basis of periodic cycle readings and include an estimated accrual for the delivery fee value of service from the last billed date to the end of the accounting period. In general, this estimated accrued revenue is based on

actual consumption for residential and small business customers [*i.e.*, commercial and industrial ("C&I") premises with demand levels of 10 kW or below] or based on the most recent billing period for larger C&I customers. From an accounting perspective, this accrual amount, known as Unbilled Revenues, represents an estimate of revenues not yet billed for which significant actual costs have been realized for service that has already been provided.

The fact that Oncor's customers are billed on a periodic cycle basis with billings being prepared throughout the month, the Unbilled Revenue accrual is materially significant. As shown in my illustrative testimony Exhibit WAL-3, based on the planned billing cycle schedule for December 2022, the number of unbilled revenue days at year-end 2022 is about 76 percent of the number of billed days during the month.

Q. IN GENERAL, HOW ARE UNBILLED REVENUES REFLECTED IN THE RATEMAKING PROCESS?

A. As described in Oncor witness Mr. Thenmadathil's direct testimony, the period of time represented by unbilled electric delivery service is a key component of the cash working capital calculation. In general, however, unbilled revenues and the associated unbilled kWh and kW values related to the unbilled revenues are largely disregarded in the ratemaking process. For example, see Oncor witness Mr. Darryl E. Nelson's direct testimony relating to the historic 2021 test-year billing units which do not reflect the net unbilled kWh or kW values supporting unbilled revenues recognized during the 2021 test-year. In addition, as I discuss later in my direct testimony, Oncor's rate base in this proceeding excludes the balances of regulatory assets and liabilities related to over-/under-recovery of unbilled revenues that are associated with the reconcilable costs separately recovered through the Company's Transmission Cost Recovery Factor ("TCRF") and Energy Efficiency Cost Recovery Factor ("EECRF") tariff processes. Because the revenues are reconcilable, only billed TCRF and

EECRF revenues are reflected in each of the Commission's pre-determined reconciliation periods. Accordingly, for regulatory accounting purposes, the unbilled TCRF and EECRF revenues are reclassified from revenue to a temporary deferred credit account (*i.e.*, a regulatory liability) to not only reflect the regulatory treatment, but also the underlying economics of the recorded amounts.

Q. IN GENERAL, HOW ARE UNBILLED REVENUES TREATED FOR INCOME TAX PURPOSES?

A. The underlying economic impact of unbilled revenue recognition includes the effect of the unbilled revenue on the determination of taxable income. Amounts recorded to unbilled revenues are included in taxable income and, pursuant to the TSA, Oncor pays current tax obligations related to the unbilled revenue amounts, including those associated with the TCRF and EECRF tariffs. Thus, even though unbilled TCRF and EECRF revenues are disregarded for ratemaking purposes, the recognition of the unbilled revenues produces a deferred tax asset related to these disregarded revenues. Accordingly, it is appropriate to reflect the related deferred tax assets and liabilities related to the deferred unbilled TCRF and EECRF revenue in rate base because they represent actual net payments that affect the total net ADIT liability. In essence, the net ADIT asset and liability represents the payment of the tax obligation on revenues in advance of when the TCRF and EECRF revenue is recognized for book purposes. Because the tax obligation is paid before the revenue is actually realized, Oncor must utilize investor-supplied capital to fund the tax obligation.

6. Goodwill

Q. PLEASE DESCRIBE HOW GOODWILL IS REFLECTED IN ONCOR'S EXTERNAL FINANCIAL REPORTING AND IN THIS RATE FILING.

A. In general, as a result of cost-based rate-making practices, the book value of most of Oncor's assets is a reasonable assessment of the fair value of the assets.

As reported in its 2021 SEC Form 10-K, Oncor's financial statements reflect a total of $4,740 million of goodwill at the 2021 test-year-end. This total includes goodwill of $676 million associated with the 2019 InfraREIT Acquisition discussed earlier in my direct testimony and a net balance of $4,064 million recognized in a 2007 transaction approved by the Commission in Docket No. 34077. For rate-making purposes, none of Oncor's goodwill asset is included in the Company's requested total of net invested capital (*i.e.*, rate base). Similarly, adjustments to the test-year-end balance of equity capital serves to adjust the actual amount of membership interests (*i.e.*, equity capital) reflected in the Company's external financial reporting to the values considered for rate-making purposes.

D. Compliance with Rate Filing Package Requirements

Q. HOW HAS THE COMPANY PREPARED ITS PROPOSED CALCULATION OF THE COST OF SERVICE FOR THE CONSOLIDATED ONCOR AND ONCOR NTU FUNCTIONS AND THE SUPPORTING DOCUMENTATION IN THIS APPLICATION?

A. Oncor has prepared its application in compliance with the RFP instructions adopted by the Commission in Project No. 49199. Information taken from the Company's books and records have been summarized and depicted on the schedules prescribed by the RFP instructions. Such schedules required by the RFP are referenced by schedule number, and each reflects the identity of the witness (or witnesses) sponsoring the schedule. As I mentioned above, for purposes of clarity when appropriate, Oncor has added columns to the schedules to separately reflect the costs of the Oncor NTU subsidiary. Also, as appropriate, workpapers used in the preparation of certain schedules have been gathered by witnesses and included in the Company's application.

Q. HOW DO THE INSTRUCTIONS IN THE RFP ADOPTED IN PROJECT NO. 49199 COMPARE WITH THE INSTRUCTIONS IN PLACE AT THE TIME OF ONCOR'S LAST BASE-RATE CASE?

A. In general, the requirements are quite similar. However, as noted in the Project No. 49199 Order, the adopted revisions include an expansion of Section VI: Other Schedules to include the various Schedule VI-M reports reflecting additional information about plant additions for transmission lines, high voltage switching stations, and substations. In addition, the revisions dictate providing additional information relating to costs and loads of direct-current interconnections to areas outside of ERCOT, as well as increased disclosure about costs to serve wholesale customers at distribution voltage. Further, schedules requiring information related to certain components of recognized construction costs have also been added to increase transparency of capitalized costs.

E. Components of Construction Costs

Q. PLEASE DESCRIBE THESE COMPONENTS OF CAPITALIZED CONSTRUCTION COSTS NOW SEPARATELY IDENTIFIED IN THE RFP SCHEDULES.

A. I sponsor RFP Schedules II-B-15A and II-B-15B, which provide statements of the methods, procedures, and calculations followed by Oncor in capitalizing an Allowance for Funds Used During Construction ("AFUDC") and Other Construction Overhead amounts ("COH"), as well as historical AFUDC and COH rates.

1. Allowance for Funds Used During Construction

Q. PLEASE DISCUSS WHAT IS MEANT BY AFUDC AND ITS SIGNIFICANCE FOR ONCOR'S CONSTRUCTION ACTIVITIES.

A. The recognition of AFUDC is prescribed in the USOA Electric Plant Instruction No. 3 *Components of construction costs* (see section A.17). The Company's policy regarding the use of and general application of AFUDC accruals is reflected in Oncor Principles, Policies and Procedures – Accounting Title: 50-02 *Allowance for Funds Used During Construction (AFUDC)* ("Policy 50-02"), which summarizes Oncor's procedures for recognizing AFUDC on expenditures reflected in Oncor's ongoing

construction work in progress ("CWIP") assets. As defined in Policy 50-02, (see my direct testimony Exhibit WAL-6), "AFUDC is a cost accounting procedure whereby amounts based upon interest charges on borrowed funds and a return on equity capital used to finance construction are charged to electric plant." Oncor capitalizes AFUDC on all active work projects involving construction periods lasting greater than thirty days, with such accruals beginning in the subsequent month after construction commencement. Regardless of business function (*i.e.*, TRAN, DIST, MET, and TDCS, which are defined later in my testimony), Oncor's AFUDC accruals are calculated based on the Company's consolidated capital structure, which results in each business function having the same AFUDC accrual rate each month. For external reporting purposes, the initial income effect of recognizing the interest portion of capitalized AFUDC is accounted for as a reduction to interest expense, and the equity portion of capitalized AFUDC is accounted for as other income. In accordance with the instructions for RFP Schedule II-B-15A, the Company has provided information concerning the accrual of AFUDC for the five calendar years ending with the 2021 test-year.

2. Construction Overheads

Q. PLEASE DISCUSS WHAT IS MEANT BY CONSTRUCTION OVERHEAD AND ITS SIGNIFICANCE FOR ONCOR.

A. To assure that construction work projects bear equitable portions of all indirect construction costs, USOA Electric Plant Instruction No. 4 *Overhead Construction Costs* provides that all "overhead construction costs, such as engineering, supervision, general office salaries and expense, construction engineering and supervision by others than the accounting utility, law expenses, insurance, injuries and damages, relief and pensions, taxes and interest, shall be charged to particular jobs or units on the basis of the amounts of such overheads reasonably applicable thereto." The Company's policy regarding the capitalization of indirect construction

overhead costs is reflected in Oncor Principles, Policies and Procedures – Accounting Title: 50-01 *Capitalization of Indirect Construction Overhead* (see my direct testimony Exhibit WAL-7). Exhibit WAL-7 provides examples of construction-related costs realized by Oncor that cannot practically be charged directly to specific construction projects and are therefore eligible to be allocated to such projects through construction overhead loading. In accordance with that policy, separate functional indirect COH loading rates are calculated monthly and applied to the Company's construction activities.

Schedule II-B-15B includes a complete statement of the methods, procedures, and calculations followed in capitalizing COH, separated into the various business functions. In addition, Schedule II-B-15B reflects Oncor's annual historical COH capitalization rates for the five calendar years ending with the 2021 test-year period.

F. Overview of Cost Functionalization

Q. WHAT DO YOU MEAN WHEN YOU USE THE TERMS "FUNCTIONALIZE" OR "FUNCTIONALIZATION"?

A. As prescribed by General Instruction Nos. 5 and 11 of the RFP, Oncor separates its net invested capital and operating costs into the applicable functions identified in 16 TAC § 25.344, "Cost Separation Proceedings" and described in 16 TAC § 25.341, "Definitions." For a Transmission & Distribution Investor-Owned Utility ("TDU") such as Oncor, functionalization serves to separate costs into the following applicable business functions: (a.) Transmission ("TRAN"), (b.) Distribution ("DIST"), (c.) Transmission and Distribution Utility Metering System Services ("MET"), (d.) Transmission and Distribution Utility Billing System Services ("TBILL"), and (e.) Transmission and Distribution Utility Customer Service ("TDCS"). As allowed by General Instruction No. 5 of the RFP, Oncor combines the TBILL and TDCS functions into one category labeled TDCS.

In general, the USOA provides reasonable cost separation between the identified business functions, with certain accounts being related to a

specific function. Notwithstanding, other accounts may reflect costs that are applicable to more than one business function and must therefore be separated between the various functions based on either: (1) direct assignment; (2) account-specific functionalization; or (3) when neither direct assignment or account-specific functionalization is possible, using default functionalization factors as addressed in Section II-F of the RFP.

Q. WHY IS IT NECESSARY TO FUNCTIONALIZE COSTS BETWEEN TRAN, DIST, MET, AND TDCS?

A. Operating within ERCOT, Oncor provides wholesale transmission services to the Company's own electricity distribution business and to other distribution electric utilities, cooperatives, and municipalities. Oncor's distribution services are provided to retail electric providers ("REPs") that sell electricity to retail customers within Oncor's certificated service area. Because the customer bases benefiting from Oncor's wholesale transmission service and retail distribution service differ, reasonable cost separation is necessary to ensure that the parties receiving the benefit of the electric delivery service are the ones paying for the cost of such service.

Also, as described in the direct testimony of Oncor witness Mr. Matthew A. Troxle, rate design for certain components of the Company's cost of service, such as measurement of electricity consumption and demand, as well as customer support and billing activities, have been decoupled, at least in part, from variable billing determinants and are instead recovered through a fixed premise customer charge and metering charge. The functionalization of costs into the MET and TDCS functions facilitates the development of reasonable tariff rates to recover these costs from the appropriate customer bases.

Q. DOES ONCOR'S DIRECT ASSIGNMENT OR ALLOCATION OF ITS TEST-YEAR COSTS ACHIEVE THE COMMISSION'S OBJECTIVE TO PROPERLY FUNCTIONALIZE AMOUNTS TO THE COMPANY'S BUSINESS FUNCTIONS?

A. Yes. As stated above, most of Oncor's costs can be directly assigned to a utility function based on the specific FERC account being functionalized. Pursuant to the three-tier functionalization process reflected in the RFP General Instruction No. 11, for those costs that cannot be directly assigned, Oncor uses an account-specific allocation based on related costs that can be directly assigned or other cost-causation metric. Despite sophistication in Oncor's financial and accounting system, a practical direct assignment or account-specific allocation of costs may not be possible, thereby necessitating the employment of the default factors presented in RFP Schedule II-F to facilitate a reasonable functionalization of the cost.

IV. DESCRIPTION AND FUNCTIONALIZATION OF NET RATE BASE

Q. PLEASE PROVIDE AN OVERVIEW OF ONCOR'S UTILITY RATE BASE REFLECTED IN THIS APPLICATION.

A. The Commission's Substantive Rules [see 16 TAC § 25.231(c)(2)] provide that the rate base of a utility, "sometimes referred to as invested capital, includes as a major component the original cost of plant, property, and equipment, less accumulated depreciation, used and useful in rendering service to the public." Other significant components of the Company's net rate base include Oncor's regulatory assets and liabilities, plant held for future use, and various working capital components, offset by ADIT. As summarized on RFP Schedule II-B, Oncor's net rate base at the 2021 test-year-end, including known and measurable adjustments thereto, totals $18,816 million. While the reasonableness and necessity of various components of Oncor's rate base is supported in the direct testimonies of other Oncor witnesses and myself, this section of my direct testimony provides the combined net total of invested capital used and useful by the Company as of the end of the test-year period.

A. Electric Plant in Service

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR DIRECT TESTIMONY REGARDING ELECTRIC PLANT IN SERVICE.

A. As shown in RFP Schedule II-B, Oncor's consolidated total of original cost of electric plant in service – gross totals almost $31.1 billion at the 2021 test-year-end, representing the largest component of Oncor's rate base. Assets reflected in Electric Plant in Service ("EPIS") are stated at original cost and include materials, both direct and indirect labor, applicable COH, and AFUDC. EPIS, net of accumulated depreciation, together with CWIP and Electric Plant Held for Future Use ("EPHFU"), make up the Company's gross Property, Plant, and Equipment – net ("PP&E") of almost $23 billion, as reported in Oncor's 2021 SEC Form 10-K.

Oncor does not own Production Plant, but does have EPIS investments recorded in the remaining four of the five major sub-divisions prescribed in the USOA electric plant descriptions. These plant descriptions provide an effective foundation for the functionalization of Oncor's EPIS into the major business functions prescribed by the RFP. In this section of my direct testimony, I will address Oncor's (1) Transmission Plant, (2) Distribution Plant, (3) Metering Investment, (4) Communication Equipment, and (5) Other General Plant and Intangible Assets.

1. Transmission Plant

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR DIRECT TESTIMONY REGARDING TRANSMISSION PLANT.

A. The Company's investment in transmission plant is recorded as EPIS in USOA accounts 350 through 359, as well as account 349, which Oncor uses to record values reflecting non-depreciable transmission-related *Land Owned in Fee*. As defined in 16 TAC § 25.341(14), transmission assets relate to "system and discretionary services associated with facilities at or above 60 kilovolts necessary to transform and move electricity from the point of interconnection of a generation source or third-party electric grid facilities, to the point of interconnection with distribution, retail customer or other third-party facilities, and related processes necessary to perform such transformation and movement." In general, transmission investment

includes the capitalized cost of electric plant assets that physically begin at the high-voltage bushing of a generation unit-main transformer and terminate at the high-side bushing of a distribution substation power (*i.e.*, step-down) transformer. Such transmission investment includes both tangible (*e.g.*, towers, poles, overhead conductor) and intangible (*e.g.*, land easements and rights-of-way) assets.

My direct testimony related to transmission plant addresses the functionalization of the costs reflected in accounts 349-359, as well as other EPIS recorded in other FERC accounts that are appropriately assigned to the TRAN function. In addition, the discussion regarding transmission plant will also summarize Oncor's transmission investment related to direct-current interconnection investment, and asset costs recognized as electric plant acquisition adjustments.

a. Functionalization

Q. HOW HAS ONCOR FUNCTIONALIZED ITS 2021 TEST-YEAR-END BALANCES OF INVESTMENT IN TRANSMISSION PLANT?

A. As summarized in my Exhibit WAL-4, Oncor records transmission plant in FERC A350 through A359, as well account 349 which Oncor has adopted to distinguish between non-depreciable land owned in fee (account 349) and depreciable land rights (FERC A350). Other than certain portions of FERC A353, EPIS recorded in account 349 through FERC A359 has been directly assigned to the TRAN function based on the FERC account number. Certain assets that have been recorded in FERC A353 (*Station Equipment*) reflect EPIS associated with load serving equipment located within the transmission switching station and, depending on the voltage rating designation reflected in the Company's continuing property records, is either directly assigned to TRAN (if at or greater than 60 kilovolts) or DIST (if less than 60 kilovolts). Documentation related to the direct assignment of these costs to the TRAN or DIST business function, as appropriate, is