

1 reviewing project financials and operational readiness; executing
2 organizational change management requirements; and providing
3 appropriate training to staff.

4 Q. WHAT IS THE PROJECT CLOSURE PROCESS?

5 A. Following completion of a project, the project closure process may include,
6 depending on the type of project: transferring responsibilities and providing
7 all of the necessary background information to the operations/support
8 teams; evaluating achievement of project objectives and sustainability of
9 improvements; completing a post go-live project retrospective and
10 documenting lessons learned; comparing actual project costs to
11 projections; determining software asset service lives; and retiring any
12 decommissioned systems that were replaced by the project.

13 Q. WHAT IS THE TECHNOLOGY PROJECT DEMAND PLANNING
14 REASSESSMENT PROCESS?

15 A. While each of the processes discussed above are intended to be
16 comprehensive, there are some instances in which a demand planning
17 reassessment process is required for a particular project. This occurs if the
18 project team identifies a special circumstance at any point during the project
19 lifecycle that introduces a significant level of complexity or uncertainty and
20 warrants a project demand planning reassessment. Based on the level of
21 complexity or uncertainty, this process may entail additional stakeholder
22 assessments and/or validation with Oncor's capital management
23 governance policy. That complexity or uncertainty may be attributable to a
24 myriad of factors, such as the project's implementation; associated
25 technology; the employees' knowledge of existing solutions; financial
26 requirements; cybersecurity protection and control requirements; data
27 protection requirements; integration requirements; process automation;
28 impacts on multiple work groups; applicable NERC, NIST, and ERCOT

1 Protocols and guides; and impacts to deregulated Texas market processes.
2 This reassessment process may also be needed to consider additional
3 comments, guidance, and feedback from stakeholders or others. The
4 reassessment may result in the need to incrementally adjust the baseline
5 for the project to maintain the prudence of the project. If it is determined
6 that a reassessment is needed for a project, the items for consideration may
7 include changes in scope, technology, operational risks, safety, regulatory
8 and security requirements, financial impacts, vendor support, and alignment
9 with current Technology group standards that were not previously identified
10 during the initial demand planning process.

11 **V. OVERVIEW OF MAJOR TECHNOLOGY ASSETS PLACED IN**
12 **SERVICE AFTER DECEMBER 31, 2016**
13 **THROUGH DECEMBER 31, 2021**

14 Q. WHAT IS THE TOTAL AMOUNT OF THE TECHNOLOGY-RELATED
15 CAPITAL INVESTMENTS SUBMITTED BY ONCOR FOR REVIEW IN
16 THIS PROCEEDING?

17 A. Oncor is requesting that a total of approximately \$960 million in technology-
18 related capital placed in service since December 31, 2016, through the end
19 of the test year ending December 31, 2021, be found reasonable,
20 necessary, and prudent in this proceeding.

21 Q. WHAT SPECIFIC INVESTMENTS OVERSEEN BY THE TECHNOLOGY
22 GROUP ARE INCLUDED IN ONCOR'S REQUEST?

23 A. Approximately \$895 million of the total approximately \$960 million in
24 technology-related capital was invested on seven major projects: the
25 Customer Care and Billing System ("CC&B"), the Advanced Enterprise
26 Geographic Information System ("AEGIS"), the Telecommunications
27 Refresh Program ("TRP") project, the replacement of Oncor's Transmission
28 Management System ("TMS"), and the Asset and Work Management,

1 Workforce and Customer Engagement, and Data Centers projects. The
 2 remaining approximately \$65 million was spent on other functions—
 3 primarily advanced analytics, SCADA and support, and cybersecurity—that
 4 I have categorized as “remaining projects,” for which I provide further details
 5 in Section V.H of my testimony below. Exhibit MAH-2 to my testimony
 6 provides summaries of the associated processes, goals, benefits, and
 7 amount of investment for each of the specific, major investments described
 8 in my testimony and for the investments categorized as “remaining
 9 projects.” Additionally, Table 1 below lists each investment and the dollar
 10 amount of investment in each since December 31, 2016 through December
 11 31, 2021:

12 **Table 1 – Technology-Related Capital Investment of**
 13 **Assets Placed in Service After December 31, 2016**

Project Name	Total
Major Investments:	
CC&B	\$ 275,015,555
AEGIS	\$ 99,727,676
TRP	\$ 168,194,626
TMS	\$ 52,606,807
Asset & Work Management	\$ 101,870,500
Workforce & Customer Engagement	\$ 107,873,231
Data Center Management	\$ 89,129,065
Subtotal Major Investments	\$ 894,417,460
Remaining Projects:	
Advanced Analytics	\$ 17,774,612
SCADA and Support	\$ 16,025,764
Cybersecurity	\$ 31,520,938
Subtotal Remaining Projects	\$ 65,321,314
Total	\$ 959,738,774

14

1 **A. CC&B Project**

2 Q. WHAT WAS THE SCOPE OF WORK FOR THE NEW FUNCTIONALITY
3 ASSOCIATED WITH THE CC&B PROJECT THAT WAS PLACED IN
4 SERVICE AFTER DECEMBER 31, 2016 THROUGH 2021?

5 A. The scope of work for the new functionality that was placed in service as
6 part of the CC&B project included the replacement of the customer
7 information and billing (“Customer Information”) components; the
8 replacement of a Texas standard electronic transaction (“Texas SET”)
9 stacking component based on requirements managed by ERCOT to accept
10 and process multiple, non-sequential market transactions concurrently on a
11 single unique meter location; ERCOT Texas SET and Oncor integration
12 services; implementation of new automation processes associated with
13 managing customer information and associated market transactions;
14 advanced metering and field workforce management; the transition to a
15 modern technology platform based on a distributed computing environment
16 that incorporates enhanced cybersecurity and data protection controls; and
17 implementation of a redundant solution at its second data center for
18 operational and maintenance resiliency.

19 The new functionality provided by CC&B allowed Oncor to replace
20 existing technology that operated primarily on antiquated mainframe
21 infrastructure with new technology that:

22 (1) improves Oncor’s ability to reliably and efficiently operate within
23 the Texas market;

24 (2) provides a platform to enhance Oncor’s customer engagement
25 processes based on modern technologies, advanced analytics, and
26 quality information;

27 (3) enables additional enhancements and integration with existing
28 and new omnichannel communications;

1 (4) automates processes identified through continuous improvement
2 forums; and

3 (5) expands access to additional relevant information.

4 It also supports processes associated with customer billing and payments,
5 maintenance of customer records on a premise basis, customer
6 transactions in accordance with the Texas SET protocols, and management
7 of customer, distribution, and measurement services, including field
8 workforce management activities.

9 Q. WHAT IS THE TEXAS SET PROTOCOL?

10 A. The Texas SET protocol encompasses the standard electronic data
11 transactions, implementation guides, protocols, principles and procedures
12 that enable and facilitate the processes of customer choice in the
13 deregulated Texas market.

14 Q. WHAT FACTORS WERE CONSIDERED BY ONCOR IN DECIDING TO
15 REPLACE THE EXISTING CUSTOMER INFORMATION COMPONENT?

16 A. The technology obsolescence of the mainframe-based Customer
17 Information component, which was previously shared with Oncor's former
18 majority owner (Energy Future Holdings Corp.), was the primary reason this
19 scope of work was completed. There were limitations on Oncor's ability to
20 apply market and regulatory changes to the aged mainframe-based
21 platform, manage digital security risks, manage the number of customer
22 premises in the customer and billing component, integrate with other Oncor
23 applications to efficiently manage the market transaction management
24 processes, and make efficient use of Oncor's workforce. There were
25 growing risks of potential business disruptions with the mainframe-based
26 component that could result in the transactional systems becoming
27 temporarily unusable, requiring manual processing of service orders,
28 customer calls, outages requiring direct interfaces with customers, and

1 other market or ERCOT-related processes. These risks of business
2 disruptions were tied to, among other things, declining availability of
3 hardware and software support resources, a lack of vendor support
4 services, restricted capabilities to integrate with more current technologies,
5 and continued reduction in internal employees having a thorough
6 understanding of the business process supported by the existing
7 technology. The transition to a modern technology platform alleviated many
8 of these concerns and provided a foundation that aligns with the Technology
9 group's core purpose of providing the tools and technology that enable
10 Oncor to enhance the customer experience while also providing safe,
11 secure, and reliable delivery of electricity to customers.

12 Q. WHAT OPTIONS FOR THE CUSTOMER INFORMATION COMPONENTS
13 WERE EVALUATED BY THE PROJECT TEAM AS PART OF THE
14 PROJECT DEMAND PLANNING PROCESS?

15 A. For the Customer Information components associated with the CC&B
16 project, the Technology group and other stakeholders evaluated four
17 options:

- 18 (1) retaining the mainframe infrastructure, existing software, and
19 existing resources;
- 20 (2) deferring the project for several years;
- 21 (3) transferring the existing software to new mainframe infrastructure
22 and updating the disaster recovery solution; or
- 23 (4) implementing new energy and utility industry-recognized
24 technologies.

25 Q. HOW DID THE PROJECT TEAM EVALUATE THESE FOUR OPTIONS
26 FOR THE CUSTOMER INFORMATION COMPONENT?

27 A. The project team compared and contrasted these four alternatives by
28 evaluating the following key measures:

- 1 • functional fit, which is a measure of how well the implemented
- 2 application is expected to meet end user requirements;
- 3 • technical fit, which is a measure of how well the implemented
- 4 application is expected to meet Oncor technical standards and
- 5 requirements;
- 6 • ease of implementation, which is the anticipated level of difficulty to
- 7 implement the required functionality; and
- 8 • timeline achievability, which is the project team's confidence in the
- 9 vendor's ability to meet the timeline outlined in their proposal.

10 Q. WHICH OPTION DID THE PROJECT TEAM INITIALLY SELECT FOR THE
11 CUSTOMER INFORMATION COMPONENTS?

12 A. The project team selected and implemented the fourth option—the
13 implementation of new energy and utility industry-recognized technologies.

14 Q. WHAT OPTIONS FOR THE TEXAS SET STACKING COMPONENT
15 WERE EVALUATED BY THE PROJECT TEAM AS PART OF THE
16 PROJECT DEMAND PLANNING PROCESS?

17 A. For the Texas SET stacking component, the project team evaluated three
18 options:

- 19 (1) implementation of a new energy and industry-recognized application
- 20 that would support the requisite functionality;
- 21 (2) implementation of a customized extension of the Customer
- 22 Information component using the same technology framework; or
- 23 (3) implementation of a customized component using its own technology
- 24 framework.

25 Q. HOW DID THE PROJECT TEAM EVALUATE THESE THREE OPTIONS
26 FOR THE TEXAS SET STACKING COMPONENT?

- 1 A. The project team compared and contrasted these three alternatives by
2 evaluating the same key measures as I described above for the customer
3 information component evaluation.
- 4 Q. WHICH OPTION DID THE PROJECT TEAM INITIALLY SELECT FOR THE
5 TEXAS SET STACKING COMPONENT?
- 6 A. The project team initially selected the first option and proceeded to
7 implement a new energy and industry-recognized application.
- 8 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
9 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
10 FOR THE CC&B PROJECT?
- 11 A. Yes, the project team adhered to the standard five-step project lifecycle for
12 the entire CC&B project, including both the Customer Information
13 components and the Texas SET Stacking component of the project. While
14 this particular project was very complex due to its overall scope, the existing
15 technology being replaced, the additional cybersecurity and data protection
16 requirements, and the uniqueness of the ERCOT workflows and market
17 rules from an energy and industry-recognized application perspective, the
18 five-step project lifecycle process was effectively used to navigate these
19 complexities.
- 20 Q. DID THE CC&B PROJECT TEAM IDENTIFY ANY ITEMS OR SPECIAL
21 CIRCUMSTANCES THAT WARRANTED THE NEED TO USE THE
22 PROJECT DEMAND PLANNING REASSESSMENT PROCESS?
- 23 A. Yes. The project team noted during the project execution process that the
24 CC&B project may warrant an additional project demand planning
25 reassessment due to the complexity and scope of the project and the
26 decreasing number of the employees with institutional knowledge of the
27 Texas Set stacking functionality due to an aging workforce. The project
28 team identified potential concerns with the first option and began to question

1 whether it could be used for the intended purpose. Specifically, the project
2 team became concerned about whether, without significant modification,
3 the first option had the capability to replace the existing, highly customized
4 business functionality used to manage all of the customer information
5 interactions generated by more than 450,000 daily deregulated Texas
6 market transactions occurring within Oncor's distribution service territory.
7 The project team also had concerns about the ability to share and
8 coordinate the specific processes between the Customer Information
9 component and the Texas SET stacking component without significant
10 customization of the component or application, as well as the overall
11 increase in the operational support requirements. The project team
12 presented the concerns to the key stakeholders, indicating that the level of
13 required customizations to establish a shared Texas SET stacking process
14 model, the ability to efficiently manage these customized stacking
15 processes, and the solution's ability to support future automation or market
16 requirements would introduce additional and unnecessary risk in
17 implementing a reliable customer services solution. As a result, the
18 Technology group suspended work on the project and performed a
19 complete reassessment of the previously reviewed options.

20 Q. WHAT RISKS WERE IDENTIFIED DURING THE PROJECT DEMAND
21 PLANNING REASSESSMENT PROCESS THAT CAUSED ONCOR TO
22 CHANGE COURSE?

23 A. As previously stated in my testimony, the project team determined that the
24 initial implementation of the Texas SET stacking functionality would not
25 support the complete functional requirements associated with the Texas
26 SET guides and more specifically the need to properly sequence those
27 transactions for processing purposes. As part of the project demand
28 planning reassessment process, the project team was asked to evaluate

1 various options related to this functionality. The key areas of risk used to
2 assess the options for this functionality included the cost of significantly
3 modifying the first option along with the Customer Information components,
4 impacts to the schedule for the overall CC&B project while trying to develop
5 and integrate the shared Texas SET stacking functionality between the two
6 components, availability of SMEs to develop, implement and operate the
7 complex functionality, market disruptions associated with managing this
8 functionality, and the supportability of the overall end-to-end customer
9 service functionality, due to the complexity of the shared stacking solution.

10 Q. GIVEN THESE CONCERNS AND RISKS, WHAT ALTERNATIVES WERE
11 CONSIDERED AS PART OF THE PROJECT DEMAND PLANNING
12 REASSESSMENT PROCESS?

13 A. The project team considered three alternatives to the Texas SET stacking
14 component implementation. The first option was to continue developing the
15 originally selected option using the energy and industry-recognized
16 application. With this option, IBM (the selected vendor for the solution)
17 provided a revised perspective on the validity of the application through
18 technical discussions and presentations that included IBM's new method of
19 delivery, success metrics, and a formal statement of work. The second
20 option was to rewrite the current component using an independent
21 architectural framework. To quantify the level of effort associated with the
22 custom development, Oncor conducted a request for information ("RFI")
23 process with selected vendors who possessed the technical capability to
24 design the stacking component. The third option was to develop a
25 customized extension of the Customer Information components to support
26 the functionality by leveraging the technology's existing architectural
27 framework. The vendor provided detailed information on how the
28 customized extension of the Customer Information components would be

1 implemented, which included technical discussions, presentations, and a
2 formal statement of work. Ultimately, Oncor selected the third option,
3 determining that transitioning to a customized extension of the Customer
4 Information components, coupled with the use of the selected vendor's
5 integration resources, would be the most prudent option—based on the
6 updated information—to enable Oncor to efficiently and effectively manage
7 the Texas SET stacking functionality.

8 Q. HOW WAS THE CUSTOMIZED EXTENSION OF THE CUSTOMER
9 INFORMATION COMPONENTS SELECTED?

10 A. In making the determination to switch to the customized extension of the
11 Customer Information components for the Texas SET stacking component
12 of the project, the project team evaluated the same four key measures used
13 when it initially evaluated options for the CC&B project (*i.e.*, functional fit,
14 technical fit, ease of implementation, and timeline) and included the
15 additional information obtained during the project execution phase. While
16 the customized extension of the Customer Information components had not
17 been initially selected in part because other products were more readily
18 known and used in the energy and utility industry, it was ultimately selected
19 as the best alternative because it scored highest on the evaluation of how
20 well the solution met the updated functional and technical requirements, its
21 ease of implementation, and the timeline presented by the vendor to place
22 the investment in service. As a leading vendor in the industry, the vendor
23 was able to provide the products and services that best met our technical,
24 functional, and operational requirements.

25 Q. WHEN WERE THE TECHNOLOGY INVESTMENTS FOR CC&B
26 PROJECT PLACED IN SERVICE?

27 A. The initial CC&B project investments were placed in service in November
28 2017. As discussed in more detail below, additional CC&B-related

1 investments were placed in service after the initial components were
2 implemented in 2017.

3 Q. WHAT ADDITIONAL CC&B-RELATED INVESTMENTS WERE PLACED
4 IN SERVICE AFTER THE INITIAL COMPONENTS WERE IMPLEMENTED
5 IN 2017?

6 A. Additional CC&B-related technology investments placed in-service in
7 2018 through 2021 are associated with follow-up market transaction
8 performance improvements, security hardening, customer engagement
9 processes including distribution field activities, disaster recovery,
10 enhancements, process automation, mass transition, safety net, and
11 upgrading of the Customer Information and Texas SET stacking
12 components.

13 Q. PLEASE DESCRIBE THE CC&B-RELATED MARKET TRANSACTION
14 PERFORMANCE IMPROVEMENT TECHNOLOGY INVESTMENTS
15 PLACED IN SERVICE FROM 2018 THROUGH 2021.

16 A. Following the implementation of the CC&B project in 2017, the project team
17 reviewed the operational end-to-end ERCOT market transaction processes
18 and identified key areas of improvement that were required to be completed
19 to correct identified issues. The areas of improvement included changes in
20 the infrastructure, software, and integration services related to the
21 deregulated Texas market transactions and associated with Oncor's
22 distribution field activities.

23 Q. PLEASE DESCRIBE THE CC&B-RELATED DISASTER RECOVERY
24 TECHNOLOGY INVESTMENTS PLACED IN SERVICE FROM 2018
25 THROUGH 2021.

26 A. Given the critical role that Oncor's customer-related technology and
27 functionality plays in reliably managing the deregulated Texas market
28 transaction requirements, disaster recovery technology investments were

1 placed in service subsequent to the original implementation. This was
2 consistent with Oncor's business continuity and disaster recovery practices.
3 These investments were associated with the implementation of additional
4 cybersecurity and business-to-business integration services in the alternate
5 data center, along with the implementation of Oncor's disaster recovery risk
6 advisor that monitors and supports the movement of customer-related
7 technologies and associated services between the data centers in the event
8 of planned or unplanned activities.

9 Q. PLEASE DESCRIBE THE UPGRADED CUSTOMER INFORMATION AND
10 TEXAS SET STACKING COMPONENTS PLACED IN SERVICE FROM
11 2018 THROUGH 2021.

12 A. The Customer Information and Texas SET stacking components were
13 successfully upgraded based on the vendor's software support lifecycle
14 policy in which the premier support for the previous version ended in April
15 2020. The software support lifecycle policy for these components is defined
16 by the vendor and provides a duration of time in which technical support is
17 readily available for a specific version of their software to assist with
18 troubleshooting and resolving functionality issues or cybersecurity
19 protection and control concerns.

20 Q. DOES THE COMPANY ANTICIPATE ADDITIONAL CUSTOMER
21 SERVICE-RELATED TECHNOLOGY INVESTMENTS?

22 A. Yes. Additional technology investments will be required to upgrade the
23 various customer service components to maintain a version of the software
24 that is supported by the vendor. Additionally, new features related to
25 software upgrades that would improve upon Oncor's end-to-end transaction
26 processes, new or updated deregulated Texas market requirements, new
27 customer-related requirements, or digital security risks may result in
28 additional technology investments.

1 Q. WHAT IS THE TOTAL COST OF ALL CC&B-RELATED PROJECTS
2 PLACED IN SERVICE AFTER DECEMBER 31, 2016 THROUGH 2021?

3 A. The total amount invested in customer service-related projects placed in
4 service after December 31, 2016 through 2021 is approximately \$275
5 million.

6 Q. IS THE INVESTMENT IN THE CC&B PROJECT PRUDENT?

7 A. Yes, the CC&B project is prudent because it enables Oncor to continue
8 providing safe, secure, and reliable delivery of electricity to customers. It
9 also enhances the customer experience and provides a new technology
10 framework capable of supporting ongoing initiatives related to Texas market
11 requirements, digital security risk mitigation efforts, and customer
12 experience. The CC&B project is also prudent due to productivity benefits
13 gained by the end users of the new Customer Information and Texas SET
14 stacking components, deregulated Texas market and Oncor integration
15 services, implementation of new automation processes associated with the
16 customer Texas SET rules, advanced metering and field workforce
17 management, use of a modern technology platform based on a distributed
18 computing environment, and implementation of a redundant solution at its
19 second data center for operational and maintenance resiliency. The
20 productivity benefits include the application's ease-of-use that is consistent
21 with other end-user technologies, streamlined business processes that
22 incorporate automation, and easier access to data for customer interactions
23 and analysis. Company witness Mr. Daniel E. Hall discusses the end-user
24 productivity benefits of this project in his direct testimony.

25 Additionally, the project was timely implemented to mitigate
26 technology risks and was implemented without creating interruptions to the
27 deregulated Texas market. All parties involved with this project provided

1 tremendous support during the transition period from the existing solution
2 to the new customer service functionality.

3 Q. IS THE CC&B CAPITAL INVESTMENT YOU DESCRIBED ABOVE USED
4 AND USEFUL IN ONCOR'S PROVISION OF SERVICE TO THE PUBLIC?

5 A. Yes. The CC&B investment described in my testimony has been placed in
6 service and is used and useful in the provision of service to the public. It
7 has provided new tools that enable Oncor to continue providing safe,
8 secure, and reliable delivery of electricity to Oncor's customers. It has also
9 provided a platform in which new and enhanced Oncor customer
10 engagement processes, such as the mobile applications defined by Oncor's
11 customer engagement program, have effectively leveraged the modern
12 technology platform and advanced analytics to provide quality information
13 to the customer. Therefore, the associated investment is used and useful.

14 **B. AEGIS Project**

15 Q. WHAT WAS THE SCOPE OF WORK FOR THE AEGIS PROJECT THAT
16 WAS PLACED IN SERVICE AFTER DECEMBER 31, 2016 THROUGH
17 2021?

18 A. The AEGIS project scope of work included five key items—the transition to
19 a new graphical design and geographic information system in place of the
20 existing system, consolidation of the various supporting applications,
21 integration with other technology systems or applications, acquisition of
22 photon light detection and ranging (“LIDAR”) measurement data to support
23 the data conflation and conversion processes, and the data conflation and
24 conversion of the old data to the new system. The investment in AEGIS
25 allowed the Company to replace the existing, obsolete distribution graphic
26 design and geographic information application and related infrastructure
27 with a modern platform capable of defending against existing and emerging

1 security risks and supporting further alignment of distribution processes with
2 customer services.

3 Q. PLEASE PROVIDE MORE DETAIL ON THE NEW APPLICATION THAT
4 REPLACED THE EXISTING GRAPHIC DESIGN AND GEOGRAPHIC
5 INFORMATION SYSTEM FUNCTIONALITY.

6 A. The AEGIS project included the replacement of the facilities rule-based
7 application model management environment (“FRAMME”) software
8 application and various supporting applications that comprised the existing
9 functionality. The FRAMME software application was used for the graphic
10 design and geographic information system functions for Oncor’s distribution
11 electrical assets. The various supporting applications provided additional
12 functionality related to ad valorem taxes, distribution planning, distribution
13 feeder asset and connectivity corrections processes, and printing and
14 plotting service location requirements for internal and external use. The
15 project also included the transition to a modern technology platform based
16 on a distributed computing environment.

17 The new technology is capable of managing an engineering and
18 geospatial representation of Oncor’s distribution electrical system assets
19 within Oncor’s service territory based on an industry standard landbase
20 capable of providing more accurate global positioning system (“GPS”)
21 coordinates of the distribution electric assets and increased quality of
22 information for the components of the distribution electrical system. The
23 geospatial representation also includes the recording of transactions
24 associated with the expansion, removal, and adjustment to the distribution
25 assets. These transactions are initiated by a work request process as part
26 of the overall engineering graphic design function for overhead,
27 underground, streetlight, and service line assets. Additionally, the electrical
28 connectivity model maintained in the new application was transformed and

1 incorporated into Oncor's outage management functionality as the base
2 electrical connectivity operating model, with incremental updates being
3 provided to maintain the quality of information

4 Q. WHAT FACTORS DID THE PROJECT TEAM CONSIDER IN REPLACING
5 THE EXISTING APPLICATION?

6 A. The project team considered obsolescence of the current technology; the
7 functionality of the new technology, including geographic information
8 system features, engineering graphic design, and landbase capabilities; the
9 technology fit for ongoing support and scalability; the vendors' product
10 strategy; the technologies' integration capabilities; the Company's
11 relationships with the vendors; the vendors' upgrade strategy and support
12 models; the vendors' market presence; and the cost of the technology. In
13 addition, the project team performed a detailed technical assessment
14 related to application maintenance and support, coordinate systems and
15 projections, end-use access, engineering graphic design, new asset
16 capabilities and GIS features, integration capabilities, infrastructure system
17 compatibility, and cybersecurity protection and controls. As a result of this
18 assessment, the project team determined it was appropriate to undertake
19 the AEGIS project to replace the existing functionality.

20 Q. HOW HAS THE NEW DISTRIBUTION GRAPHIC DESIGN AND
21 GEOGRAPHIC INFORMATION SYSTEM FUNCTIONALITY IMPROVED
22 UPON ONCOR'S WORKFORCE PROCESSES?

23 A. Oncor identified several new functions that have improved upon Oncor's
24 existing workforce processes. These new functions include: (1) enhanced
25 engineering design validation checks related to device connectivity,
26 phasing, and ownership prior to submitting the engineering design to the
27 construction crews; (2) improved engineering design quality and accuracy
28 using satellite imagery and other industry mapping information; (3)

1 enhanced printing and mapping functions to support functional
2 requirements by Oncor and external entities; (4) improved user capability
3 by allowing multiple engineering design activities to occur on the same
4 distribution assets and performing quality controls that will identify design
5 conflicts prior to allowing the project to be approved or closed; (5) providing
6 the distribution engineer or designer with the capability to create a
7 customized workspace, which more readily supports their individual
8 processes or their specific geographic location within Oncor's service
9 territory; (6) providing a means in which the distribution engineer or designer
10 can denote a "design area" as a flag to other users where project work is
11 underway; and (7) ability to consolidate the various distribution engineering
12 or design tools on a common end-user computer. Company witness Mr.
13 Keith Hull discusses the end-user benefits of this project in his direct
14 testimony.

15 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
16 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
17 FOR THE AEGIS PROJECT?

18 A. Yes, the project team adhered to the standard five-step project lifecycle for
19 the AEGIS project and did not require a project reassessment phase to be
20 completed.

21 Q. WHAT OPTIONS DID THE AEGIS PROJECT TEAM EVALUATE AS PART
22 OF THE PROJECT DEMAND PLANNING PROCESS?

23 A. The project team used the Request for Proposals ("RFP") process to
24 evaluate and select the appropriate vendors to provide the new graphic
25 design and geographic information system functionality, the photon LIDAR
26 measurement data, and the data conversion and conflation services. The
27 RFP committee evaluated responses from two vendors for the new graphic
28 design and geographic information system functionality, four vendors for the

1 data conversion and conflation services, and two vendors for the photon
2 LIDAR measurement data. Through the RFP process, an energy and utility
3 industry-recognized vendor was selected to provide the new graphic design
4 and geographic information system functionality, and the data conversion
5 and conflation services that met Oncor's technical, functional, and
6 operational specifications. A different energy and utility-recognized vendor
7 was selected for the photon LIDAR measurement data. This selected
8 vendor was the first vendor to commercialize the use of Geiger-mode type
9 LIDAR equipment developed for high-altitude LIDAR collection processes
10 to provide large area mapping services that meet Oncor's functional
11 requirements associated with data conflation and conversion.

12 Q. WHEN WERE THE AEGIS PROJECT INVESTMENTS PLACED IN
13 SERVICE?

14 A. The AEGIS project investments were placed in service in December 2019.
15 The existing technology investment replaced by AEGIS project was retired
16 in the same year. In addition, further investments were placed in service in
17 2020.

18 Q. PLEASE DESCRIBE THE ADDITIONAL TECHNOLOGY INVESTMENTS
19 PLACED IN SERVICE IN 2020.

20 A. The additional technology investments placed in service in 2020 included
21 the upgrade of the graphic design and geographic information system
22 application for functional improvements and as part of Oncor's security
23 hardening efforts. It also included the associated web portal and database
24 that allowed Oncor to maintain a version of software and database that is
25 supported by the vendors. The additional technology investments also
26 included consolidation of the transmission and distribution fiber optic
27 geographical asset management and engineering graphic design
28 processes into the new graphic design and geographic information system

1 application, implementation of functionality associated with partial
2 energization of distribution electrical assets, and the design of future
3 interfaces with the new distribution work and asset management
4 application.

5 Q. WHAT IS THE TOTAL COST OF THE AEGIS PROJECT THAT WAS
6 PLACED IN SERVICE THROUGH 2021?

7 A. The total amount of capital investment in AEGIS-related projects placed in
8 service through 2021 is approximately \$100 million.

9 Q. IS THE INVESTMENT IN THE AEGIS PROJECT PRUDENT?

10 A. Yes. The AEGIS project is prudent because of its focused improvements
11 on engineering design validation checks and design quality and accuracy.
12 It is also prudent because it enabled a transition to new landbase standards
13 and incorporates satellite imagery and other industry mapping information
14 that has allowed improvements in electrical design engineering processes
15 and associated customer interactions.

16 Q. IS THE CAPITAL INVESTMENT ASSOCIATED WITH THE AEGIS
17 PROJECT USED AND USEFUL IN ONCOR'S PROVISION OF SERVICE
18 TO THE PUBLIC?

19 A. Yes. The AEGIS project has been placed in service and is used and useful
20 in providing service to the public. It also utilizes industry-recognized GIS
21 information standards to improve upon data quality for Oncor processes and
22 functional requirements by external entities. Additionally, it has enhanced
23 customer and workforce experience and has provided better visibility of
24 available data. Therefore, the associated investment is used and useful.

25 **C. TRP Project**

26 Q. WHAT WAS THE SCOPE OF WORK FOR THE TRP PROJECT THAT
27 WAS PLACED IN SERVICE AFTER DECEMBER 31, 2016 THROUGH
28 2021?

1 A. The TRP project is a long-term, multi-year initiative to replace both the
2 aging, copper-based equipment provided, but no longer supported, by the
3 public telecommunication carriers, as well as the legacy
4 telecommunications infrastructure managed by Oncor. These new
5 technologies are used by the Company to support various voice and data
6 transport services for T&D substation functions, technology data centers,
7 distribution automation functions, Oncor’s mobile workforce, ERCOT and
8 generation metering functions, and Company facilities. Additionally, the
9 TRP project includes the purchase of additional radio frequency spectrum
10 to support the implementation of communications in part of Oncor’s service
11 territory where no other communications alternatives are available. The
12 investment provides a modern communications platform based on current
13 telecommunication standards that improves cybersecurity and reliability.
14 Company witness Mr. Collin M. Martin’s direct testimony provides additional
15 details on why this scope of work was necessary and describes the benefits
16 gained from this scope of work that allowed Oncor to better control its own
17 telecommunications infrastructure.

18 Q. WHAT TECHNOLOGIES ASSOCIATED WITH THE TRP PROJECT HAVE
19 BEEN PLACED IN SERVICE?

20 A. The telecommunications network technologies placed in service as part of
21 the TRP project include, but are not limited to:

22 (1) a digital microwave system providing internet protocol (“IP”) and time
23 division multiplexed (“TDM”) connectivity linking tower sites into the
24 core network;

25 (2) Multiprotocol Label Switching (“MPLS”)-enabled network
26 components for a next-generation intelligent network capable of
27 delivering a wide variety of advanced, value-added services over a
28 single infrastructure;

- 1 (3) Narrowband wireless telecommunications technologies to replace
2 aging tail circuits;
- 3 (4) a fiber network providing long-haul and short-haul fiber connections;
- 4 (5) various wireless technologies operating over 900 MHz and 700 MHz
5 radio frequencies to connect field locations with the core network;
6 and
- 7 (6) Land Mobile Radio (“LMR”) equipment for push-to-talk voice
8 communications.
- 9 Q. WHAT FACTORS DID THE PROJECT TEAM CONSIDER WHEN IT
10 DECIDED TO UNDERTAKE THE TRP PROJECT?
- 11 A. The project team considered many factors that included:
- 12 (1) the risk associated with recently announced changes by the public
13 telecommunication carriers to discontinue providing analog and
14 digital services via copper circuits, which resulted in the degradation
15 of service quality and lack of vendor support;
- 16 (2) the associated risk of loss of connections necessary for T&D
17 operations;
- 18 (3) the difficulty experienced by the Technology group in continuing to
19 support T&D’s field technology initiatives such as Distribution
20 automation, improved SCADA communications, and mobile
21 workforce management using the existing telecommunications
22 system;
- 23 (4) the digital security risks;
- 24 (5) the difficulty experienced by the Technology group in continuing
25 compliance with ERCOT and NERC requirements using the existing
26 telecommunications system;
- 27 (6) the impact that the telecommunications system has on a customer’s
28 interaction with Oncor;

- 1 (7) whether alternative solution options would provide Oncor with
2 suitable tools and technology to deliver safe, secure, and reliable
3 electric utility service along with an optimal customer experience;
4 (8) the alignment of the new telecommunications system with evolving
5 Company requirements; and
6 (9) the need for better visibility of the technology in the field for storm
7 response and other purposes.

8 Q. WHAT OPTIONS WERE CONSIDERED FOR THE REPLACEMENT OF
9 THE TELECOMMUNICATIONS NETWORK FUNCTIONALITY?

10 A. The project team utilized a competitive procurement process to select the
11 major telecom vendors for the various telecommunications network
12 components. A vendor shortlisting process was conducted through
13 decision matrices largely based on vendor product lines and their ability to
14 help Oncor deploy and operationally support this infrastructure. RFPs were
15 then issued to shortlisted vendors in each of the telecom equipment
16 categories listed above (e.g., digital microwave, MPLS-enabled network,
17 wireless, fiber and LMR components). Vendors and solutions were
18 evaluated, scored, and selected based on a number of criteria, including,
19 but not limited to pricing, technical and functional specifications,
20 performance, vendor presentations and demos, and references. The
21 selected vendors are leaders in their respective industries and provide
22 products and services that meet our technical, functional, and operational
23 specifications as outlined in the RFP process.

24 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
25 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
26 FOR THE TRP PROJECT?

27 A. Yes, the project team adhered to the standard five-step project lifecycle for
28 the TRP project. After the original demand planning process was

1 completed, a demand planning reassessment was later completed for the
2 TRP project, which led to the decision to implement the use of the 700 MHz
3 spectrum and multiple address system technology once they became viable
4 options, in addition to the technology solutions previously described.

5 Q. WHEN WERE THE TECHNOLOGY INVESTMENTS RELATED TO THE
6 TRP PROJECT PLACED IN SERVICE?

7 A. The TRP project is a multi-year and multi-work stream project with
8 investments placed in service after December 31, 2016 through 2021, and
9 work is still continuing. Assets have been placed in service as they are
10 ready for their intended use. Specifically, the installation of the digital
11 microwave equipment was broken up by regional deployments, with 2018
12 through 2021 in-service dates, varying by region. The installation of the
13 MPLS-enabled network equipment and associated remote terminal unit
14 remediation began in 2017 and is still ongoing. Regarding the 700MHz,
15 900MHz, and tail circuit wireless equipment, the in-service dates for these
16 lower bandwidth radio frequencies began in 2018 and is still ongoing. The
17 installation of fiber and associated network equipment began in 2016 and
18 is still ongoing. Finally, the LMR equipment was placed in service at the
19 end of 2020. Additional mobile and portable radio rollouts along with tower
20 radio installation will continue into 2022.

21 Q. WHAT IS THE TOTAL COST OF ALL TRP-RELATED PROJECTS
22 PLACED IN SERVICE AFTER DECEMBER 31, 2016 THROUGH 2021?

23 A. The total amount invested in TRP-related projects placed in service after
24 December 31, 2016 through 2021 is approximately \$168 million.

25 Q. IS THE INVESTMENT IN THE TRP PROJECT PRUDENT?

26 A. Yes, the TRP project is prudent because it has provided tools and
27 technology that enable Oncor to enhance the safety, security, and reliability
28 of the delivery of electricity to customers. The project also facilitated a move

1 from public to predominantly private communications infrastructure, thus
2 upgrading and digitizing telecom infrastructure to improve redundancy and
3 resiliency. It also eliminated reliance on obsolete outside services that were
4 no longer being maintained and enabled Oncor to further incorporate digital
5 security risk management processes based on applicable NERC Reliability
6 Standards, NIST Cybersecurity Framework, and ERCOT Protocols and
7 guides. Furthermore, the TRP is prudent due to the productivity benefits
8 gained by the users of the new telecommunications network, which include
9 T&D's ability to transition from an analog to an internet protocol-based
10 communication service for its SCADA operations, T&D's ability to
11 implement new field technologies, T&D's ability to extract additional data
12 from the field assets for electric service reliability improvement processes,
13 and enhancement of T&D's workforce capabilities and customer
14 engagement processes. In his direct testimony, Company witness Mr.
15 Martin discusses the operational benefits of this project and explains that
16 the replacement infrastructure significantly outperforms the aging telecom
17 network.

18 Q. IS THE CAPITAL INVESTMENT FOR THE TRP PROJECT YOU
19 DESCRIBED ABOVE USED AND USEFUL IN ONCOR'S PROVISION OF
20 SERVICE TO THE PUBLIC?

21 A. Yes. The capital investments for the TRP project that have been placed in
22 service are used and useful with respect to Oncor's provisioning of service
23 to the public. It also continues to support new and existing functional
24 requirements related to transmission SCADA, distribution SCADA,
25 advanced metering, data transport, voice communications and mobile
26 communications and continues to support evolving physical and cyber
27 protection control requirements under applicable NERC Reliability

1 Standards, NIST Cybersecurity Framework, and ERCOT Protocols and
2 guides. Therefore, the associated investment is used and useful.

3 **D. TMS Replacement Project**

4 Q. WHAT WAS THE SCOPE OF WORK RELATED TO THE TMS
5 REPLACEMENT PROJECT THAT WAS PLACED IN SERVICE AFTER
6 DECEMBER 31, 2016 THROUGH 2021?

7 A. The TMS replacement project scope of work placed in service after
8 December 31, 2016, includes the replacement of the existing transmission
9 SCADA and associated technology components, with new transmission
10 SCADA infrastructure, the data center networks used to support the new
11 transmission SCADA system, cybersecurity protection and controls,
12 technology and communications facilities, SCADA-related technologies in
13 the new backup control center described in the direct testimony of Company
14 witness Mr. Martin, and the primary management and monitoring
15 technologies used to support the transmission SCADA functionality.

16 Q. WHAT FACTORS DID ONCOR CONSIDER WHEN DETERMINING THE
17 SCOPE OF WORK FOR UPGRADING OR REPLACING THE
18 TRANSMISSION SCADA?

19 A. The Technology group considered several factors, including the fact that
20 the then-current transmission SCADA and its associated infrastructure was,
21 or soon would be, obsolete and not supported by the replaced application.
22 We also considered the need to implement more modern cybersecurity
23 protection and controls, as well as the impact that the existing transmission
24 SCADA and the potential upgrade or replacement of the transmission
25 SCADA would have on T&D reliability and related services, ERCOT
26 services, and a customer's experience with Oncor. We also took into
27 account Oncor's ability to continue maintaining compliance with the
28 applicable NERC Reliability Standards, NIST Cybersecurity Framework,

1 and ERCOT Protocols and guides. Additionally, we considered the fact that
2 the maintenance of a modern technology platform would continue to provide
3 a foundation that would align with the Technology group's core purpose of
4 providing the tools and technology that enable Oncor to provide an optimal
5 customer experience while enhancing the safety, security, and reliability of
6 the delivery of electricity to customers. In his direct testimony, Company
7 witness Mr. Martin provides additional background details of the TMS
8 replacement project and explains why it was necessary. He also discusses
9 the reasons that Oncor decided a replacement of the prior system was more
10 prudent than attempting to further upgrade the existing system.

11 Q. WHAT SCADA APPLICATION OPTIONS WERE EVALUATED AS PART
12 OF THE DEMAND PLANNING PROCESS?

13 A. During the demand planning process and based on the factors listed above,
14 the project team decided to evaluate and compare the next version of the
15 existing SCADA application with other potential SCADA vendor
16 applications. First, Oncor evaluated three project management vendors
17 and chose Accenture to support the formal RFP process for the TMS
18 replacement project, due to Accenture's experience and capabilities.
19 Working with Accenture, the project team then used an open bid
20 procurement process to issue a formal transmission SCADA application
21 RFP, which resulted in the evaluation of four potential vendors. These
22 vendor solutions were evaluated based on utility visits/reference checks,
23 technical and non-technical criteria, price, and vendor
24 presentations/demonstrations. After extensive reviews, Oncor selected an
25 energy and industry-recognized technology vendor based on ranking first in
26 four of the five weighted criteria categories. The new transmission SCADA
27 vendor provided a technology that had the most modern architecture, the

1 most flexible user interface, and performed better in both customer
2 satisfaction and support.

3 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
4 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
5 FOR THE TMS REPLACEMENT PROJECT?

6 A. Yes, the project team adhered to the standard five-step project lifecycle for
7 the TMS replacement project and was able to implement the new
8 transmission SCADA functionality without demand planning
9 reassessments.

10 Q. WHEN WERE THE TECHNOLOGY INVESTMENTS RELATED TO THE
11 TMS PROJECT PLACED IN SERVICE?

12 A. Approximately \$53 million of the technology investments related to the TMS
13 replacement project were placed in service in 2020 and 2021.

14 Q. WERE THE REPLACED TECHNOLOGY INVESTMENTS ASSOCIATED
15 WITH THE EXISTING TRANSMISSION SCADA COMPONENT
16 DECOMMISSIONED AS PART OF THE TMS REPLACEMENT
17 PROJECT?

18 A. Yes.

19 Q. DOES THE COMPANY ANTICIPATE ADDITIONAL TECHNOLOGY
20 INVESTMENTS RELATED TO THE TMS REPLACEMENT PROJECT?

21 A. Yes. Additional technology investments will include replacement of primary
22 management and monitoring technologies used to support the new
23 transmission SCADA functions, security hardening activities, enhanced
24 functional requirements, additional cybersecurity and data protection
25 enhancements identified through digital security risk mitigation efforts, end-
26 to-end process improvements associated with the operations of the TMS,
27 and the addition of features to meet the requirements associated with

1 applicable NIST Cybersecurity Framework, NERC Reliability Standards,
2 and ERCOT Protocols and guides.

3 Q. IS THE INVESTMENT IN THE TMS REPLACEMENT PROJECT
4 PRUDENT?

5 A. Yes. The TMS replacement project is prudent because it incorporated a
6 new telecommunications network infrastructure to support the current and
7 future SCADA data transfer requirements and embedded a more
8 comprehensive suite of cybersecurity protection and controls. It also
9 mitigated the challenges associated with maintaining the existing SCADA
10 application on a vendor-supported software version, and will be used to
11 provide enhanced productivity benefits to the users of the new transmission
12 SCADA system. The enhanced productivity benefits include items such as
13 enhanced situational awareness processes by leveraging new integration
14 capabilities to incorporate additional data sources to provide a common and
15 holistic view, enhanced capabilities associated with transmission grid state
16 estimation processes, enhanced information access capabilities with
17 respect to transmission engineering and planning services, and the
18 application's ease-of-use by the Transmission Grid Operators that is
19 consistent with other end-user technologies. The implementation of the
20 project was accomplished with no interruption of the transmission system
21 or the deregulated Texas market and was done in accordance with the
22 current Technology group's processes and technology guidance. In his
23 direct testimony, Company witness Mr. Martin discusses the operational
24 benefits of this project and explains why the TMS is critical to the operation
25 of Oncor's electrical grid.

26 Q. IS THE CAPITAL INVESTMENT FOR THE TMS REPLACEMENT
27 PROJECT YOU DESCRIBED ABOVE USED AND USEFUL IN ONCOR'S
28 PROVISION OF SERVICE TO THE PUBLIC?

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1 A. Yes. The capital investment for the TMS replacement project has been
2 placed in service and is used and useful in providing reliable service to
3 ERCOT and the public. The new transmission SCADA system has
4 improved upon Oncor's transmission network analysis processes,
5 enhanced Operator training, maintained compliance with NERC's ever-
6 evolving critical infrastructure protection standards, leveraged new
7 substation-to-SCADA communications technologies, and incorporated
8 advanced cyber protection and controls. Therefore, the associated
9 investment is used and useful.

10 **E. Asset and Work Management Projects**

11 Q. WHAT WERE THE SCOPES OF WORK FOR THE ASSET AND WORK
12 MANAGEMENT CATEGORY OF PROJECTS THAT WERE PLACED IN
13 SERVICE AFTER DECEMBER 31, 2016 THROUGH 2021?

14 A. The scope of work related to the asset and work management projects that
15 were placed in service after December 31, 2016, included the
16 implementation, enhancement, or replacement of:

- 17 • the advanced metering system ("AMS," discussed in greater detail in
18 Company witness Mr. Hall's direct testimony);
- 19 • the transmission engineering application ("PETE," discussed in
20 greater detail in Company witness Mr. Speed's direct testimony);
- 21 • the transmission geospatial information system application ("OTIS,"
22 discussed in greater detail in Company witness Mr. Speed's direct
23 testimony);
- 24 • the Sharyland technology integration solutions;
- 25 • the asset and work management application;
- 26 • the transmission outage management application;
- 27 • the transmission diagnostic application;
- 28 • the transmission relay setting management application;

- 1 • the transmission relay setting testing application;
- 2 • the technology asset health monitor application for data center
- 3 equipment;
- 4 • the transmission engineering content management application;
- 5 • the integration services applications;
- 6 • the distribution employee timekeeping application;
- 7 • the distribution serve new project status application; and
- 8 • the technology integration services platform.

9 Q. WHAT WERE THE GENERAL FACTORS CONSIDERED BY THE
10 PROJECT TEAMS IN IMPLEMENTING, ENHANCING, OR REPLACING
11 TECHNOLOGIES IN THE ASSET AND WORK MANAGEMENT
12 CATEGORY?

13 A. The general factors considered by the project teams in enhancing or
14 replacing technologies in this category include product obsolescence,
15 vendor-defined end-of-life, vendor-defined premier technical support
16 criteria, cybersecurity protection and controls, operational or maintenance
17 impacts, regulatory requirements, and new functional requirements.

18 Q. WHAT IS THE TOTAL COST OF INVESTMENT IN THE ASSET AND
19 WORK MANAGEMENT CATEGORY THAT WAS PLACED IN SERVICE
20 AFTER DECEMBER 31, 2016 THROUGH DECEMBER 31, 2021?

21 A. The total amount invested in technology-related asset and work
22 management projects placed in service after December 31, 2016 through
23 2021 is approximately \$102 million.

24 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
25 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
26 FOR EACH OF THE ASSET AND WORK MANAGEMENT PROJECTS?

27 A. Yes.

1 Q. DID THE ASSET AND WORK MANAGEMENT PROJECT TEAMS
2 IDENTIFY ANY ITEMS OR SPECIAL CIRCUMSTANCES THAT
3 WARRANTED THE NEED TO USE THE PROJECT DEMAND PLANNING
4 REASSESSMENT PROCESS?

5 A. No.

6 Q. ARE THE INVESTMENTS IN THE ASSET AND WORK MANAGEMENT
7 CATEGORY PRUDENT?

8 A. Yes. The various asset and work management investments used to support
9 transmission, distribution, and technology are prudent because they
10 enhance Oncor's ability to effectively manage its electrical and cyber assets
11 based on its design standards, maintenance criteria, cybersecurity controls,
12 and operational requirements and in accordance with regulatory
13 requirements for providing safe and reliable service.

14 Q. ARE THE CAPITAL INVESTMENTS ASSOCIATED WITH THE ASSET
15 AND WORK MANAGEMENT CATEGORY USED AND USEFUL IN
16 ONCOR'S PROVISION OF SERVICE TO THE PUBLIC?

17 A. Yes.

18 **F. Workforce and Customer Engagement Projects**

19 Q. WHAT WERE THE SCOPES OF WORK RELATED TO THE
20 WORKFORCE AND CUSTOMER ENGAGEMENT CATEGORY OF
21 PROJECTS THAT WERE PLACED IN SERVICE AFTER DECEMBER 31,
22 2016 THROUGH 2021?

23 A. The scope of work related to the workforce and customer engagement
24 projects that were placed in service after December 31, 2016, included the
25 implementation, enhancement, or replacement of:

- 26 • the automation platform and processes;
27 • the software testing application;

- 1 • the software development and technology operations platform
- 2 (“DevOps”);
- 3 • the customer-facing web sites;
- 4 • the project management application;
- 5 • the customer outage management platform;
- 6 • the customer call manager application;
- 7 • the customer preference management application;
- 8 • the mobile applets and application platform;
- 9 • the email application;
- 10 • the collaboration applications;
- 11 • the software license management application;
- 12 • the work and resource management application;
- 13 • the financial information management application;
- 14 • the end-user computer software;
- 15 • the mobile device management application;
- 16 • the human capital management platform; and
- 17 • the end-point management platform.

18 Q. WHAT WERE THE GENERAL FACTORS CONSIDERED BY THE
19 PROJECT TEAMS IN IMPLEMENTING, ENHANCING, OR REPLACING
20 TECHNOLOGIES IN THE WORKFORCE AND CUSTOMER
21 ENGAGEMENT CATEGORY?

22 A. The general factors considered by the project teams in enhancing or
23 replacing technologies in this category include product obsolescence,
24 vendor-defined end-of-life, vendor-defined premier technical support
25 criteria, cybersecurity protection and controls, operational or maintenance
26 impacts, and new functional requirements.

27 Q. WHAT IS THE TOTAL COST OF INVESTMENT IN THE WORKFORCE
28 AND CUSTOMER ENGAGEMENT CATEGORY THAT WAS PLACED IN

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1 SERVICE AFTER DECEMBER 31, 2016 THROUGH DECEMBER 31,
2 2021?

3 A. The total amount invested in technology-related workforce and customer
4 engagement projects placed in service after December 31, 2016 through
5 2021 is approximately \$108 million.

6 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
7 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
8 FOR EACH OF THE WORKFORCE AND CUSTOMER ENGAGEMENT
9 PROJECTS?

10 A. Yes.

11 Q. DID THE WORKFORCE AND CUSTOMER ENGAGEMENT PROJECT
12 TEAMS IDENTIFY ANY ITEMS OR SPECIAL CIRCUMSTANCES THAT
13 WARRANTED THE NEED TO USE THE PROJECT DEMAND PLANNING
14 REASSESSMENT PROCESS?

15 A. No.

16 Q. ARE THE INVESTMENTS IN THE WORKFORCE AND CUSTOMER
17 ENGAGEMENT CATEGORY PRUDENT?

18 A. Yes. The investments related to the workforce and customer service
19 engagement category are prudent because they provide Oncor's workforce
20 and customers with improved or new end-to-end processes through the use
21 of automation, self-service capabilities, and effective use of modern end-
22 user platforms including mobile technologies.

23 Q. ARE THE CAPITAL INVESTMENTS ASSOCIATED WITH THE
24 WORKFORCE AND CUSTOMER ENGAGEMENT CATEGORY USED
25 AND USEFUL IN ONCOR'S PROVISION OF SERVICE TO THE PUBLIC?

26 A. Yes.

G. Data Centers Projects

- 1
- 2 Q. WHAT WAS THE SCOPE OF WORK RELATED TO THE DATA CENTERS
- 3 CATEGORY OF PROJECTS THAT WERE PLACED IN SERVICE AFTER
- 4 DECEMBER 31, 2016 THROUGH 2021?
- 5 A. The scope of work related to the data centers project that was placed in
- 6 service after December 31, 2016, included the implementation,
- 7 enhancement, or replacement of:
- 8 • the business-to-business file and integration gateway application;
 - 9 • the infrastructure software management automation;
 - 10 • the data replication application;
 - 11 • the platform-as-a-service application;
 - 12 • the databases;
 - 13 • the operating systems;
 - 14 • the certificate authority application;
 - 15 • the software licenses;
 - 16 • the DevOps and lower environment management; and
 - 17 • the disaster recovery environments.
- 18 Q. WHAT WERE THE GENERAL FACTORS CONSIDERED BY THE
- 19 PROJECT TEAMS IN IMPLEMENTING, ENHANCING, OR REPLACING
- 20 TECHNOLOGIES IN THE DATA CENTERS CATEGORY?
- 21 A. The general factors considered by the project teams in enhancing or
- 22 replacing technologies in this category include product obsolescence,
- 23 vendor-defined end-of-life, vendor-defined premier technical support
- 24 criteria, cybersecurity protection and controls, operational or maintenance
- 25 impacts, and new functional requirements.
- 26 Q. WHAT IS THE TOTAL COST OF INVESTMENT IN THE DATA CENTER
- 27 CATEGORY THAT WAS PLACED IN SERVICE AFTER DECEMBER 31,
- 28 2016 THROUGH DECEMBER 31, 2021?

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1 A. The total amount invested in technology-related data center projects placed
2 in service after December 31, 2016 through 2021 is approximately \$89
3 million.

4 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
5 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
6 FOR EACH OF THE DATA CENTER PROJECTS?

7 A. Yes.

8 Q. DID THE DATA CENTER PROJECT TEAMS IDENTIFY ANY ITEMS OR
9 SPECIAL CIRCUMSTANCES THAT WARRANTED THE NEED TO USE
10 THE PROJECT DEMAND PLANNING REASSESSMENT PROCESS?

11 A. No.

12 Q. ARE THE INVESTMENTS IN THE DATA CENTERS CATEGORY
13 PRUDENT?

14 A. Yes. The investments in this category are prudent because they provide an
15 enhanced computing environment that can be managed efficiently and
16 reliably, can effectively support new initiatives or technologies, supports the
17 effective use of disaster recovery processes for Oncor's business continuity
18 program, and is securely integrated with ERCOT market participants,
19 service providers, and hosted services.

20 Q. ARE THE CAPITAL INVESTMENTS ASSOCIATED WITH THE DATA
21 CENTERS CATEGORY USED AND USEFUL IN ONCOR'S PROVISION
22 OF SERVICE TO THE PUBLIC?

23 A. Yes.

24 **H. Remaining Projects**

25 Q. IN ADDITION TO THE MAJOR INVESTMENTS DESCRIBED ABOVE,
26 WHAT ADDITIONAL CATEGORIES OF TECHNOLOGY INVESTMENTS
27 WERE PLACED IN SERVICE AFTER DECEMBER 31, 2016 THROUGH
28 2021?

1 A. Since December 31, 2016, additional technology-related capital
2 investments were placed in service that relate to advanced analytics,
3 SCADA and support, and cybersecurity. I will describe in my testimony
4 below the types of technology investments that were placed in service
5 associated with each of these three categories.

6 Q. WHAT TYPES OF TECHNOLOGY INVESTMENTS ASSOCIATED WITH
7 ADVANCED ANALYTICS WERE PLACED IN SERVICE AFTER
8 DECEMBER 31, 2016 THROUGH 2021?

9 A. The types of technology investments associated with advanced analytics
10 include the implementation, enhancement, or replacement of:

- 11 • the advanced analytics models including those related to customers,
12 meters and customer outages;
- 13 • the geospatial analytics platform;
- 14 • the master data management application;
- 15 • the advanced analytics platform;
- 16 • the data warehouse cybersecurity controls;
- 17 • the data virtualization application; and
- 18 • the data extract, transform, and load application.

19 These technology investments include the various data transport or access,
20 warehouse, governance, and analytics platforms that are used to perform
21 systematic computational analysis of Oncor data for the discovery,
22 interpretation, and communication of meaningful patterns in the data. This
23 category also includes investments used in the development of advanced
24 analytics models that can be incorporated in functional processes to
25 enhance or refine decision making processes. Company witnesses
26 Messrs. Hagen Haentsch, Hull, and Hall provide details in their direct
27 testimonies regarding the benefits of incorporating advanced data analytics
28 into their respective areas of responsibility.

1 Q. WHAT TYPES OF TECHNOLOGY INVESTMENTS ASSOCIATED WITH
2 SCADA AND SUPPORT WERE PLACED IN SERVICE AFTER
3 DECEMBER 31, 2016 THROUGH 2021?

4 A. The types of technology investments associated with SCADA and support
5 include the implementation, enhancement, or replacement of:

- 6 • the distribution SCADA application;
- 7 • the distribution outage management application;
- 8 • the transmission backup application; and
- 9 • the transmission outage application.

10 These technology investments are primarily continuous-improvement
11 initiatives associated with managing outages of T&D electric assets from
12 the perspective of reliability performance metrics, causal analysis, and
13 customer experience.

14 Q. WHAT TYPES OF TECHNOLOGY INVESTMENTS ASSOCIATED WITH
15 CYBERSECURITY WERE PLACED IN SERVICE AFTER DECEMBER 31,
16 2016 THROUGH 2021?

17 A. The decision to undertake technology investments associated with
18 cybersecurity protections and controls was based on a complex set of digital
19 security risks, processes, strategies, applicable NERC Reliability Standards
20 or NIST Cybersecurity Framework or guides, technologies and other
21 requirements associated with diverse IT and OT environments. These
22 technology investments include continuous expenditures for resource
23 management, protection and control technologies, incidence response, and
24 compliance management proportional to the introduction of evolving
25 advanced technologies in these environments and their respective threat
26 management risk. These technology investments allow Oncor to provide
27 safe and reliable service by monitoring and protecting cyber assets from
28 cyber events that could potentially result in unauthorized access,

1 processing, corruption, modification, transfer, or disclosure of company
2 data and information.

3 Q. DID THE PROJECT TEAM USE THE STANDARD FIVE-STEP PROJECT
4 LIFECYCLE DESCRIBED ABOVE IN SECTION IV OF YOUR TESTIMONY
5 FOR EACH OF THESE REMAINING TECHNOLOGY-RELATED
6 INVESTMENTS?

7 A. Yes.

8 Q. WHAT IS THE TOTAL COST OF ALL TECHNOLOGY-RELATED
9 INVESTMENT IN THESE REMAINING PROJECTS PLACED IN SERVICE
10 AFTER DECEMBER 31, 2016 THROUGH 2021?

11 A. As noted earlier in my testimony, the total cost of all technology-related
12 investment in these remaining projects discussed in this section of my
13 testimony that were placed in service from December 31, 2016 through
14 2021 is approximately \$65 million.

15 Q. ARE THE INVESTMENTS IN EACH OF THESE REMAINING PROJECTS
16 PRUDENT?

17 A. Yes. The investments in these remaining projects are prudent because
18 each project has provided new or enhanced applications and processes that
19 enable Oncor to continue providing safe, secure, and reliable delivery of
20 electricity to Oncor's customers.

21 Q. ARE THE CAPITAL INVESTMENTS RELATED TO THESE REMAINING
22 PROJECTS DESCRIBED ABOVE USED AND USEFUL IN ONCOR'S
23 PROVISION OF SERVICE TO THE PUBLIC?

24 A. Yes.

25 **VI. RETIREMENTS OF TECHNOLOGY ASSETS**

26 Q. WHAT IS THE TECHNOLOGY GROUP'S PROCESS FOR RETIRING ANY
27 DECOMMISSIONED SYSTEMS THAT ARE REPLACED BY A NEW
28 PROJECT?

1 A. As previously stated in my testimony, since 2010, the PMO and financial
2 governance functions have implemented a routine five-step project lifecycle
3 to effectively deliver new or enhanced solutions and ensure prudent
4 investments. As part of the project closure process, at the time a project is
5 placed in service, the PMO and financial governance functions along with
6 the project teams follow a routine to identify and confirm asset functional
7 descriptions, determine the useful lives of the new investments, and identify
8 assets by functional description that were replaced or decommissioned as
9 a result of placing the new project in service. During the latest annual review
10 of historical projects in-service, the Technology group conducted a thorough
11 review of investments in technology-related applications over the last
12 several years and identified certain Technology projects and/or applications
13 as not being appropriately retired following the implementation of
14 subsequent replacement projects. The collective approximate value of
15 these projects and applications is \$63 million, the majority of which is related
16 to technology applications categorized as a distribution investment.

17 Q. WHAT STEPS HAS ONCOR TAKEN TO ADDRESS THIS RETIREMENT
18 ISSUE?

19 A. Through the review process described above, the Technology group
20 identified all assets that should have been retired and provided this list to
21 the Accounting group. In his direct testimony, Company witness Mr.
22 Ledbetter addresses how this issue is being addressed from an accounting
23 perspective in order to make ratepayers whole. The Technology group also
24 informed Company witness Mr. Watson that these assets have now been
25 retired on Oncor's books so that the assets will receive the appropriate
26 treatment in Mr. Watson's depreciation study. The Technology group is now
27 confident that all technology applications and related assets that should
28 have been retired as of the end of the test year have, in fact, been retired

1 on Oncor's books. The Technology group has also implemented enhanced
2 procedures to ensure that these types of reviews are conducted on an
3 annual basis going forward in order to confirm that all technology-related
4 retirements are timely made.

5 **VII. REASONABLENESS AND NECESSITY OF THE TECHNOLOGY**
6 **GROUP'S TEST-YEAR COSTS AND KNOWN AND MEASURABLE**
7 **ADJUSTMENTS**

8 Q. WHAT TYPES OF O&M COSTS DOES THE TECHNOLOGY GROUP
9 INCUR?

10 A. In addition to the outsourced O&M costs described in the direct testimonies
11 of Company witnesses Mr. Austin and Mr. Matthew D. Smith, the
12 Technology group incurs ordinary O&M costs including, but not limited to,
13 costs for labor-related items (e.g., wages, salaries, and employee
14 expenses), materials and supplies, contract labor, telecom circuit costs,
15 hardware and software maintenance, and professional services.

16 Q. WERE ANY OF ONCOR'S TECHNOLOGY-RELATED TEST YEAR O&M
17 SERVICES PROVIDED BY AN AFFILIATE?

18 A. Yes. Veritas Technologies LLC ("Veritas") continued to provide data
19 storage, data back-up, disaster recovery, and related services to Oncor
20 during the test year. These services are part of a multi-year initiative to
21 support many projects, including AMS and CC&B, capable of monitoring
22 and moving the technologies and associated services between data centers
23 in the event of planned or unplanned events, consistent with Oncor's
24 business continuity and disaster recovery practices. As discussed in the
25 direct testimony of Company witness Mr. Michael A. Grable, Veritas is an
26 affiliate of Oncor.

27 Q. WHY DID ONCOR SELECT VERITAS TO PROVIDE THESE SERVICES?

1 A. In 2015, prior to becoming an affiliate of Oncor, the Technology group
2 selected Veritas to provide technical support to efficiently implement a
3 modern and reliable disaster recovery (“DR”) framework capable of
4 supporting a multi-year business continuity and disaster recovery initiative.
5 The decision to hire a new vendor to provide these services was based on
6 several factors, including the lack of existing resource knowledge of the
7 modern technologies and associated services, the scale of the project, and
8 the complexity of effectively implementing the processes and controls for
9 monitoring and moving technology components, systems, and services
10 between data centers for both planned and unplanned events. In addition,
11 Veritas services were used to document the DR framework processes and
12 controls and to provide “hands-on” work sessions to train and transition the
13 DR framework and functions to the existing Technology group resources.
14 The Technology group selected Veritas to provide these services based on
15 vendor-specific O&M cost and program management controls in a manner
16 consistent with the selection of any other vendor.

17 Q. IN ADDITION TO ONCOR’S PROCESSES REGARDING CAPITAL
18 INVESTMENT DISCUSSED EARLIER IN YOUR TESTIMONY, WHAT
19 OTHER GENERAL COST CONTROLS ARE IN PLACE IN THE
20 TECHNOLOGY GROUP WITH RESPECT TO O&M COSTS?

21 A. Consistent with the cost controls described in Mr. Austin’s direct testimony,
22 the Technology group develops an annual O&M budget through the annual
23 review process. The financial governance group, along with the
24 management team, review monthly charges, investigate any material
25 variances from the approved budget, and take action to reduce costs where
26 possible in order to stay in line with approved budget targets. In addition,
27 due to the complexity and unique types of cost incurred by the Technology
28 group, the financial governance and accounts payable functions are

1 embedded in a dedicated group focused on transactions within the
2 Technology function, versus a centralized group serving the remainder of
3 the Oncor business functions.

4 Q. WERE THE TECHNOLOGY-RELATED O&M COSTS INCLUDED IN THE
5 TEST YEAR COST OF SERVICE REASONABLE AND NECESSARY?

6 A. Yes. In addition to the costs associated with the two managed service
7 providers as discussed in Company witnesses Mr. Austin's and Smith's
8 direct testimonies, the costs associated with the Technology group
9 described above were reasonable and necessary and should be recovered
10 in Oncor's rates. These expenses, totaling approximately \$83 million in the
11 test year, provide needed cybersecurity protections for grid operations and
12 are necessary to the ongoing safe and reliable operation of a large T&D
13 utility such as Oncor. The costs are reflective of arm's-length service
14 agreements with third parties, and certain costs result from RFPs issued by
15 the Company, which reflect the Technology group's ongoing efforts to
16 examine its operational needs and provide itself with additional flexibility,
17 cost control, and oversight as to the necessary services being provided.

18 Q. HAS ONCOR MADE ANY KNOWN AND MEASURABLE ADJUSTMENTS
19 TO THE TECHNOLOGY-RELATED TEST-YEAR O&M COSTS
20 DISCUSSED ABOVE?

21 A. Yes, aside from known and measurable adjustments related to outsourcing
22 relationships, which are discussed in Mr. Austin's direct testimony, Oncor
23 has made approximately \$1.1 million of other known and measurable
24 adjustments for technology-related O&M costs for hardware and software
25 maintenance agreements. The adjustments are associated with many
26 programs, including disaster recovery, security, asset lifecycle refresh,
27 customer communications, infrastructure, analytics, and monitoring. These
28 annualized O&M cost adjustments are necessary due to the fact that

1 payments were processed in the middle of the test year and due to annual
2 increase provisions in the agreements. In addition, Oncor has made a
3 known and measurable adjustment of approximately \$22,000 related to
4 maintenance agreements for software purchased from Veritas. I have
5 provided these adjustments to Company witness Mr. Ledbetter for inclusion
6 in the cost of service, and I provided the adjustment related to Veritas to
7 Company witness Mr. Grable.

8 **VIII. CONCLUSION**

9 Q. WHAT CONCLUSIONS HAVE YOU REACHED WITH REGARD TO YOUR
10 DIRECT TESTIMONY?

11 A. The Technology group fulfills its responsibility for the reliability and
12 sustainability of Oncor's Digital Grid, made up of all technology assets that
13 enable Oncor to safely, securely, and reliably deliver electricity to our
14 customers. These responsibilities include technology strategy, alignment
15 with industry standards, new platform development, and IT / OT production
16 operations, inclusive of all communications networks and field
17 telecommunications, cybersecurity, and management of Oncor's
18 technology platform. The Technology group consistently fulfills its
19 responsibilities by evaluating and then selecting investments for new or
20 enhanced functionality that are aligned with its goals and by following the
21 process described in my direct testimony to ensure technology investments
22 are prudent. It also adheres to the cost control process described in Mr.
23 Austin's direct testimony to ensure incurred costs are reasonable and
24 necessary.

25 Q. WERE ONCOR'S TECHNOLOGY-RELATED CAPITAL EXPENDITURES
26 PRUDENT, REASONABLE, AND NECESSARY?

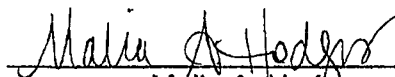
- 1 A. Yes, the Technology group's capital assets discussed are used and useful
2 and the investment in these assets was prudent, reasonable, and
3 necessary.
- 4 Q. ARE ONCOR'S TEST YEAR O&M COSTS DISCUSSED IN YOUR DIRECT
5 TESTIMONY, AS ADJUSTED FOR KNOWN AND MEASURABLE
6 CHANGES, REASONABLE AND NECESSARY?
- 7 A. Yes. The technology-related O&M test year costs are reasonable and
8 necessary to support Oncor's business requirements. The known and
9 measurable adjustments to the test-year cost of service capture the
10 expected expense levels that will be realized by the Company on a
11 prospective basis. The adjustments are reflective of ongoing costs and
12 eliminate test-year costs that will not be recurring expenses.
- 13 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
- 14 A. Yes, it does.

AFFIDAVIT

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

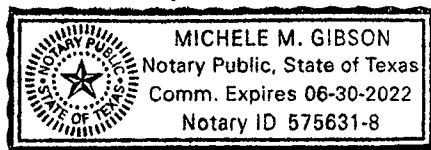
BEFORE ME, the undersigned authority, on this day personally appeared Malia A. Hodges, who, having been placed under oath by me, did depose as follows:


My name is Malia A. Hodges. I am of legal age and a resident of the State of Texas. The foregoing direct testimony and attached exhibits 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.



Malia A. Hodges

SUBSCRIBED AND SWORN TO BEFORE ME by the said Malia A. Hodges this 15th day of April, 2022.



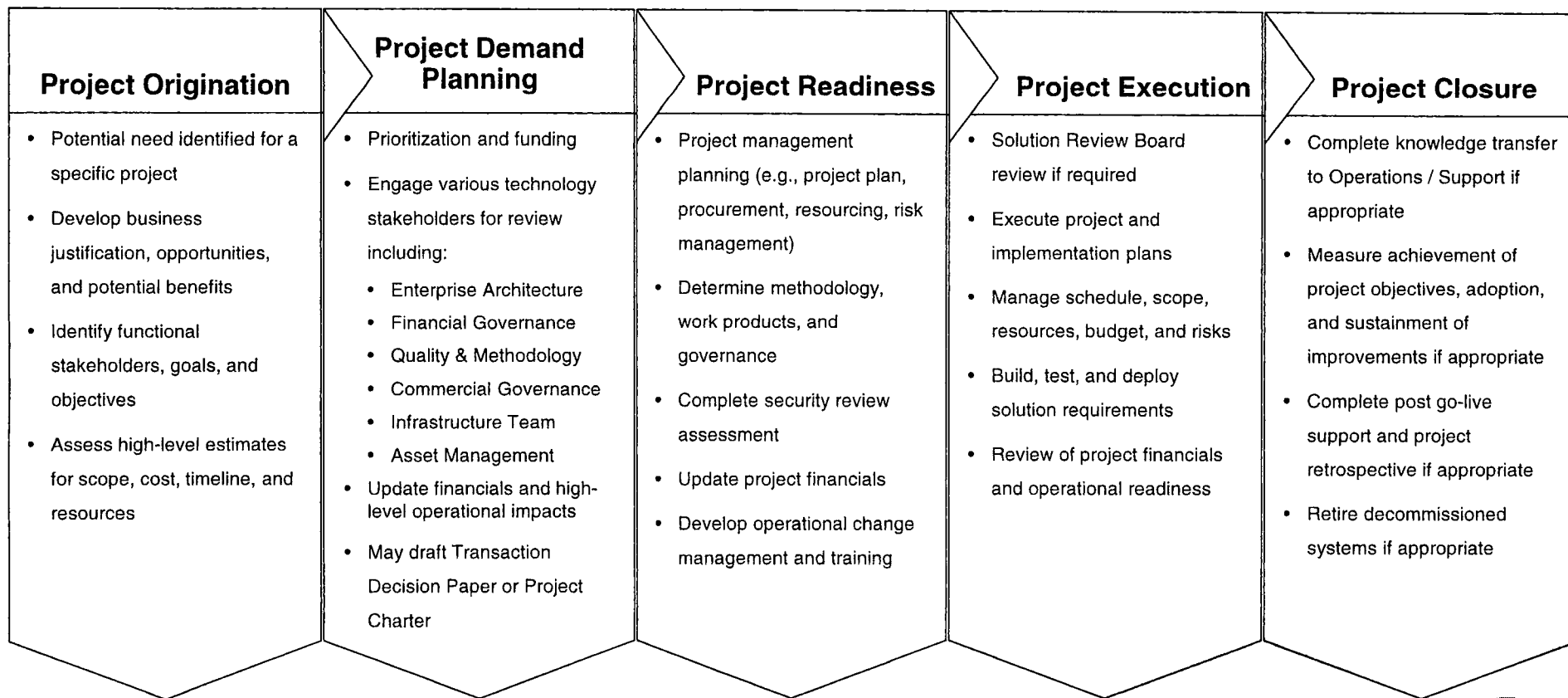


Notary Public, State of Texas

PUC Docket No. _____

Hodges - Direct
Oncor Electric Delivery
2022 Rate Case

Project Life Cycle Overview



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1 If appropriate, the project team may perform a Project Reassessment during the five-step lifecycle



Summaries of the Associated Processes, Goals, and Benefits of the Major
Technology-Related Capital Investments

Customer Care & Billing System Project

- Associated processes and areas of focus:
 - customer billing and payments;
 - premise-based customer record management;
 - Texas Standard Electronic Transaction (“SET”) transactions;
 - customer engagement;
 - market operations;
 - distribution field workforce management; and
 - measurement services (advanced metering).
- Specific goals and objectives for the project included (among others):
 - provide a platform to enhance Oncor’s customer engagement processes based on modern technologies, advanced analytics, and quality information;
 - enable additional enhancements and integration with existing and new omnichannel communications;
 - automate certain processes;
 - expand Oncor’s and customers’ access to energy usage, billing, and service order information;
 - support processes associated with customer billing and payments;
 - manage customer transactions in accordance with Texas SET protocols; and
 - manage various customer, distribution, and measurement services, including field workforce management activities.
- Additional project benefits realized include (among others):
 - completed various field activities and customer service orders;
 - installed new service connections;
 - enabled use of historical information related to Oncor’s activities at a specific premise;
 - replaced the mainframe-based customer information component with a modern software application;
 - replaced custom-developed market transaction management component with a modern software application;
 - replaced integration services software applications with modern software applications;
 - implemented process automation; and
 - implemented a disaster recovery solution.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$275,015,555.

Advanced Enterprise Geographic Information System Project

- Associated processes and areas of focus:
 - distribution graphical engineering design and geographic information management;
 - asset management, service quality management, feeder maintenance, and transformer load management processes;
 - distribution planning, accounting, outage management, construction and maintenance, and work management;
 - quality of asset location information using photon light detection and ranging (“LIDAR”); and
 - an industry standard landbase.
- Specific goals and objectives for the project included (among others):
 - implement new distribution facilities rule-base application model management environment software application;
 - provide a platform to enhance Oncor’s distribution engineering design and geographic information management processes based on modern technologies and quality information;
 - conversion and conflation of distribution electrical asset information;
 - decommission several ancillary applications consolidated into the new platform; and
 - implement processes and/or solutions for business continuity.
- Additional project benefits realized include (among others):
 - completed data conversion and conflation and transitioned to an industry standard landbase;
 - incorporated Sharyland assets, Dallas - Fort Worth area electric underground network assets, and fiber assets;
 - enhanced the distribution electrical connectivity model;
 - incorporated the use of LIDAR asset location information;
 - enhanced data analytics and reporting;
 - enhanced integration services;
 - enhanced processes associated with ad valorem taxes, distribution planning, distribution feeder asset and connectivity corrections, and printing and plotting service location requirements; and
 - provided a framework for mobile application development.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$99,727,676.

Telecommunications Refresh Program Project

- Associated processes and areas of focus:
 - voice and data transport services for transmission and distribution substations, technology data centers, and Oncor's facilities;
 - Oncor's mobile workforce;
 - data transport services for the Electric Reliability Council of Texas ;
 - data transport services for distribution automation functions and generation metering functions; and
 - radio frequency spectrum.
- Specific goals and objectives for the project included (among others):
 - implement a modern digital microwave system capable of providing both internet protocol and time division multiplexed connectivity;
 - establish a next-generation intelligent multiprotocol label switching communications network;
 - implement modern narrowband wireless technologies to replace aging tail circuits;
 - implement a modern fiber network for long-haul and short-haul services;
 - acquire additional radio frequency spectrum;
 - implement modern 700 and 900 MHz radio frequency technologies; and
 - implement modern land mobile radio push-to-talk voice communications.
- Additional project benefits realized include (among others):
 - use of a modern private telecommunications network ended Oncor's reliance on public telecommunications for critical services including operation of the electric grid, short-supply events, and Black Start situations;
 - improved reliability with respect to transmission supervisory control and data acquisition remote-terminal-units availability;
 - transition from analog to digital communications;
 - enhanced voice and data transport cybersecurity protections and controls;
 - expanded capabilities to support distribution automation functions;
 - additional transport capacity for current and future data and voice transport substation requirements including access to event data, physical security information, and maintenance information; and
 - allows Oncor to more efficiently prioritize and coordinate substation maintenance needs and outage responses related to its communication infrastructure.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$168,194,626.

Transmission Management System Project

- Associated processes and areas of focus:
 - transmission supervisory control and data acquisition (“SCADA”) and associated control centers;
 - transmission SCADA management, monitoring, and infrastructure;
 - Electric Reliability Council of Texas (“ERCOT”) requirements and guidelines;
 - transmission electric substation remote terminal units;
 - data center networks;
 - cybersecurity protection and controls; and
 - information technology and communications facilities.

- Specific goals and objectives for the project included (among others):
 - provide a new platform to enhance Oncor’s transmission SCADA processes based on modern technologies, advanced analytics, and quality information;
 - integrate with ERCOT in accordance with their guidelines;
 - integrate with over 1,200 transmission substation locations;
 - establish a new secondary transmission SCADA data center;
 - establish a new secondary transmission SCADA control center;
 - implement new and enhanced data center networks;
 - implement new and enhanced cybersecurity protection and controls;
 - implement a new transmission SCADA lower environment for testing and quality assurance;
 - implement disaster recovery capabilities between the primary and secondary transmission SCADA data centers and control centers;
 - implement enhanced management and monitoring technologies for the transmission SCADA solution;
 - implement an operator training simulator; and
 - integrate with external services including weather and employee safety.

- Additional project benefits realized include (among others):
 - enhanced system visualization, network analysis, data center, and training simulator capabilities;
 - enhanced monitoring of the overall transmission network and individual facilities;
 - enhanced remote restoration capability of the electric transmission grid;
 - enhanced load-shed capability;
 - provisioning of Oncor transmission operations data to ERCOT and neighboring entities;
 - monitoring and controlling facilities necessary to meet all Nuclear Plant Interface Requirements; and
 - enhanced capability to perform planned switching with monitoring and remote control for construction projects.

- Total capital investment after December 31, 2016 through December 31, 2021 is \$52,606,807.

Asset and Work Management Project

- Associated processes and areas of focus:
 - advanced metering;
 - transmission engineering, content management, relay management, geospatial information management, outage management, and diagnostics;
 - distribution employee timekeeping, and new customer services;
 - transmission and distribution asset and work management, and incorporation of Sharyland operations; and
 - technology application integration services ,and asset health monitoring.
- Specific goals and objectives for the project included (among others):
 - enhancing or replacing asset and work management technologies based on product obsolescence, vendor-defined end-of-life, vendor-defined premier technical support criteria, cybersecurity protection and controls, operational or maintenance impacts, regulatory requirements, or new functional requirements.
- Additional project benefits realized include (among others):
 - enhanced advanced metering functionality;
 - consolidated Sharyland operations with Oncor functions;
 - enhanced transmission functions related to construction, substation relay management, electric asset outages and performance, and electric asset diagnostic maintenance;
 - enhanced distribution functions related to employee time management and customer services;
 - enhanced transmission and distribution functions related to tracking electric asset attributes and work activities; and
 - enhanced technology functions related to integration services and digital asset health monitoring.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$101,870,500.

Workforce and Customer Engagement Project

- Associated processes and areas of focus:
 - technology management;
 - human resources human capital management;
 - financial information management;
 - customer services;
 - collaboration;
 - end-user mobile applications; and
 - process automation.
- Specific goals and objectives for the project included (among others):
 - enhancing or replacing workforce and customer engagement technologies based on product obsolescence, vendor-defined end-of-life, vendor-defined premier technical support criteria, cybersecurity protection and controls, operational or maintenance impacts, regulatory requirements, or new functional requirements.
- Additional project benefits realized include (among others):
 - established an automation platform and enhanced work productivity by automating manual activities;
 - replaced and enhanced technologies related to software development, testing, and operations;
 - replaced and enhanced customer-related technologies including outage management, preference management, call manager, websites, and mobile applets;
 - replaced and enhanced email and other collaboration technologies;
 - established and enhanced Oncor end-user device management capabilities and security;
 - replaced and enhanced the financial information management application;
 - replaced and enhanced the human capital management platform;
 - replaced and enhanced the technology asset, project, and work management applications;
 - established and enhanced a mobile application platform; and
 - enhanced transmission and distribution processes with mobile applets.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$107,873,231.

Data Centers Project

- Associated processes and areas of focus:
 - integration services with external entities;
 - infrastructure software management automation and operating systems;
 - disaster recovery environments;
 - platform-as-a-service;
 - databases and data replication;
 - certificate authority;
 - software licenses; and
 - development, operations and lower environment management.
- Specific goals and objectives for the project included (among others):
 - enhancing or replacing data center technologies based on product obsolescence, vendor-defined end-of-life, vendor-defined premier technical support criteria, cybersecurity protection and controls, operational or maintenance impacts, regulatory requirements, or new functional requirements.
- Additional project benefits realized include (among others):
 - enhanced business-to-business file transfer processes with external entities;
 - incorporated and enhanced software management automation processes related to technology infrastructure;
 - enhanced disaster recovery environments to support both maintenance and event-based activities;
 - established a platform-as-a-service to enable on-premise cloud computing services;
 - upgraded and hardened databases;
 - upgraded and hardened operating systems;
 - enhanced data replication processes to support operations and analytic functions;
 - replaced and enhanced the certificate authority to effectively manage the volume of certificates maintained by Oncor;
 - enhanced capabilities with respect to managing the technology software licenses; and
 - enhanced capabilities related to technology's development, operations, and lower environments.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$89,129,065.

Advanced Analytics Projects

- Associated processes and areas of focus:
 - advanced analytic use cases;
 - extract, transform, and load application;
 - cognitive analytics platform;
 - geospatial analytics platform;
 - data stores and data warehouses; and
 - data access and replication.

- Specific goals and objectives for the project included (among others):
 - develop and implement data analytic models to benefit transmission, distribution, technology, customer, and advanced metering processes;
 - upgrade the extract, transform, and load application;
 - implement a cognitive analytics platform;
 - implement a geospatial analytics platform;
 - implement and enhance data stores and data warehouses; and
 - implement and enhance data access and replication.

- Additional project benefits realized include (among others):
 - developed analytic models using advanced and geospatial analytics platforms to improve upon processes related to transmission, distribution, technology, customer, and advanced metering;
 - enhanced extract, transform, and load application to support efficient transfer and transformation of data between applications or databases;
 - established a cognitive and geospatial platform to support the development of advanced analytics models including asset health, network risk, predictive maintenance, and distribution electrical connectivity;
 - implemented and enhanced data stores and data warehouses to support new operational reporting and advanced analytics requirements;
 - established a data virtualization platform to centrally and securely access distributed and disparate data sources;
 - implemented additional role-based data access controls for improved security;
 - implemented and enhanced data replication processes to improve transmission operational processes using Supervisory Control and Data Acquisition information; and
 - developed and implemented data access application programming interfaces to enhance transmission and distribution operational processes by retrieving lightning and weather data from third-party services.

- Total capital investment after December 31, 2016 through December 31, 2021 is \$17,774,612.

SCADA and Support Projects

- Associated processes and areas of focus:
 - distribution Supervisory Control and Data Acquisition (“SCADA”) and outage management; and
 - transmission SCADA backup services and outage management.
- Specific goals and objectives for the project included (among others):
 - upgrade the distribution outage management application and implement new functionality;
 - upgrade the transmission outage management application and enhance the solution with a high-availability architecture;
 - implement low-voltage indicator status functionality in the distribution SCADA application; and
 - implement new backup solution for transmission SCADA.
- Additional project benefits realized include (among others):
 - enhanced distribution outage management functionality from the perspective of performance metrics, causal analysis, and customer experience;
 - enhanced transmission outage management functionality with respect to performance metrics and causal analysis, and improvements related to the applications availability;
 - enhanced distribution SCADA functionality to improve service restoration activities and customer experience; and
 - enhanced restoration capability associated with the transmission SCADA application.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$16,025,764.

Cybersecurity Projects

- Associated processes and areas of focus:
 - digital security risks related to data, cybersecurity, reputation, talent requirements, privacy, third parties, technology, compliance and artificial intelligence for information technology environments, operations technology environments, and customer services.
- Specific goals and objectives for the project included (among others):
 - enhance information protection and controls;
 - enhance access protection and controls;
 - enhance device management protection and controls;
 - enhance monitoring and analytics processes; and
 - enhance governance, risk, and compliance processes.
- Additional project benefits realized include (among others):
 - improved cybersecurity information, access, and device management protection and controls, monitoring, analytics, and risk management capabilities related to transmission, distribution, technology, and customer processes;
 - improved cybersecurity protection and controls related to external contractor processes; and
 - improved cybersecurity protection and controls related to mobile application functionality.
- Total capital investment after December 31, 2016 through December 31, 2021 is \$31,520,938.

**2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
MALIA A. HODGES**

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

Testimony Workpapers/Hodges

Hodges Testimony WP.xlsx

2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
KNOWN & MEASURABLE ADJUSTMENT WORKPAPER SUMMARY - EMBEDDED AND AFFILIATE - TECHNOLOGY
FOR THE TEST YEAR ENDED DECEMBER 31, 2021
SPONSORING WITNESS: MALIA A. HODGES

Item Name	Item Description	2021 Test Year Amount	Known & Measurable Adjustment Amount	Adjusted 2021 Test Year Amount
Information Technology	Embedded: Hardware and software maintenance	\$39,525,090	\$1,131,652	\$40,656,742
Information Technology	Affiliate: Veritas - Software maintenance (including vendor SHI)	\$693,846	\$22,139	\$715,985
	Total Embedded and Affiliate	\$40,218,936	\$1,153,791	\$41,372,727

**INDEX TO THE DIRECT TESTIMONY
OF MATTHEW D. SMITH, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC**

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II.	ONCOR OUTSOURCING BACKGROUND	4
III.	GOVERNANCE OF SERVICE PROVIDERS	6
IV.	CURRENT SERVICE PROVIDER TEST YEAR COSTS	8
	A. Information Technology.....	10
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	C. Supply Chain.....	15
	D. Finance & Accounting	16
	E. Human Resources.....	17
	F. Reasonableness of Test Year Costs for Outsourcing Contracts	19
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	EXHIBIT	
	Exhibit MDS-1 – Analysis of Oncor Outsourcing Costs	

PUC Docket No. _____

**Smith - Direct
Oncor Electric Delivery
2022 Rate Case**

1 **DIRECT TESTIMONY OF MATTHEW D. SMITH**

2 **I. POSITION AND QUALIFICATIONS**

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

5 A. My name is Matthew D. Smith. My business address is 1231 Woodview
6 Lane, Northbrook, Illinois 60062. I am currently the Founder and Partner of
7 Woodview Advisors LLC – a consulting and advisory firm primarily focused
8 on the Energy & Utility sector.

9 Q. WHAT SPECIFIC EXPERIENCE DO YOU HAVE RELATING TO
10 OUTSOURCING STRATEGY, EXECUTION, AND MANAGEMENT?

11 A. I have participated in a wide range of client engagements in all phases of
12 the sourcing life cycle. These include:

- 13 • strategic initiatives related to alternative service delivery models (in-
14 source, shared service center, captive, outsource, *etc.*), including
15 assessment and recommendations related to costs, benefits, and
16 risks that were delivered in connection with new scope and existing
17 contracts approaching end of term;
- 18 • execution of sourcing strategies, including competitive and sole
19 source processes to confirm scope and service levels, evaluation of
20 capabilities, selection of qualified providers, and entering into
21 contracts;
- 22 • implementation and transition support following contract execution;
- 23 • renewal, rebid, and re-scoping of existing outsourcing relationships;
24 and
- 25 • optimization initiatives focused on improving service satisfaction,
26 relationship quality, and costs.

27 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND, WORK
28 EXPERIENCE, AND PROFESSIONAL QUALIFICATIONS.

PUC Docket No. _____

**Smith - Direct
Oncor Electric Delivery
2022 Rate Case**

1 A. I have more than 40 years of professional services experience in the energy
2 and utility industry and have worked with over 25 of the largest gas and
3 electric utilities in the United States and Canada. I received a Bachelor of
4 Arts degree in Accounting from Michigan State University in 1979 and am
5 a Certified Public Accountant, registered in the State of Illinois. I held
6 several positions across a 23-year career with Arthur Andersen. These
7 positions included 10 years in the utility audit practice where I performed
8 annual financial statement audits of investor-owned utilities. I also
9 participated in a wide range of regulatory proceedings regarding various
10 rate base, cost of service, and income tax issues. As a Partner with Arthur
11 Andersen, I led a wide range of consulting engagements, which included
12 strategic planning and execution, design and implementation of business
13 systems, mergers and acquisitions, process re-engineering and
14 outsourcing strategies, regulatory consulting, and expert testimony. I
15 ultimately served as the Global Leader for the Energy Business Consulting
16 practice. In 2002, I became the Vice President of the Utility Segment of
17 BearingPoint (formerly KPMG Consulting) overseeing a wide range of
18 projects, including systems implementation and integration, outsourcing,
19 and business consulting. In 2004, I joined EquaTerra, Inc. ("EquaTerra") as
20 Executive Director and led the Energy & Utilities team. EquaTerra, which
21 specialized in outsourcing advisory services, was then acquired by KPMG
22 LLP ("KPMG") in 2011. In September of 2018, I retired from KPMG where
23 I was a Principal and led the advisory practice for the firm in the Energy,
24 Natural Resources, and Chemical sector. I was also part of KPMG's Global
25 Business Services ("GBS") network.

26 The focus of KPMG's GBS practice is to help clients develop and
27 implement successful sourcing strategies for business services and other
28 operating functions. I met regularly with energy and utility executives
29 regarding outsourcing trends and developments and alternative service

PUC Docket No. _____

**Smith - Direct
Oncor Electric Delivery
2022 Rate Case**

1 delivery models. I also led engagements with clients to initiate, change,
2 renew, and optimize outsourcing relationships.

3 Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC UTILITY
4 COMMISSION OF TEXAS (“COMMISSION”)?

5 A. Yes. I testified in Commission Docket No. 35717 on behalf of Oncor Electric
6 Delivery Company LLC (“Company” or “Oncor”) regarding outsourcing
7 relationships and related test year costs. I also pre-filed testimony in
8 Commission Docket Nos. 38929 and 46957 on behalf of Oncor on similar
9 topics, but did not testify live.

10 Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

11 A. I am testifying on behalf of Oncor. First, I will provide background regarding
12 Oncor’s outsourcing relationships. Second, I will describe the processes
13 used to govern and modify these relationships. Finally, I will describe the
14 changes in service providers and scope of service since December 31,
15 2016, and the reasonableness of the operations and maintenance (“O&M”)
16 cost of those services in the test year, which is the twelve-month period
17 ending December 31, 2021 (the “Test Year”), and any known and
18 measurable adjustments. My direct testimony and its exhibit were prepared
19 by me or under my direction or supervision and are, to the best of my
20 knowledge and belief, true and correct. I have leveraged resources and
21 pricing databases from KPMG’s GBS practice to assist in my analysis. My
22 testimony is organized consistent with the topics set forth above.

23 **II. ONCOR OUTSOURCING BACKGROUND**

24 Q. CAN YOU BRIEFLY DESCRIBE ONCOR’S EXPERIENCE MANAGING
25 OUTSOURCING RELATIONSHIPS?

26 A. Yes. Oncor has nearly 18 years of experience managing outsourcing
27 relationships, beginning with an outsourcing transaction initiated in May
28 2004 with Capgemini Energy, L.P. (“CGE”) for services valued at

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1 approximately \$800 million spanning a 10-year timeframe. Under that
2 agreement, the following services were contracted for delivery by CGE:

- 3 • Information Technology, including Infrastructure and Applications;
- 4 • Customer Engagement;
- 5 • Supply Chain;
- 6 • Finance and Accounting; and
- 7 • Human Resources.

8 When Oncor, its affiliates and parent company were acquired in a leveraged
9 buyout in October 2007, Oncor exercised a provision in the governing
10 agreements that allowed for termination of the respective CGE agreements
11 due to a change in control. Following the termination, Oncor implemented
12 a multi-sourcing strategy whereby multiple service providers and internal
13 resources were to deliver the services previously provided by CGE.

14 Q. IS THIS SERVICE DELIVERY MODEL TYPICAL IN THE OUTSOURCING
15 MARKET?

16 A. Yes, particularly with companies using or implementing a “2nd generation”
17 sourcing model. Many companies, including Oncor, experience significant
18 changes to their business model over the course of such extended terms,
19 which creates challenges in successfully managing the contract. The
20 market trend for outsourcing since Oncor contracted with CGE has been
21 away from a single provider towards multiple providers.

22 Q. HAS THE PORTFOLIO OF SERVICE PROVIDERS CHANGED SINCE
23 DECEMBER 31, 2016, WHICH WAS THE END OF THE TEST YEAR FOR
24 ONCOR’S LAST BASE RATE CASE?

25 A. The only change in service providers is in the Human Resource service area
26 where the services previously provided by NorthgateArinso, Inc. are now
27 provided by Ultimate Kronos Group Inc. and Businessolver.com Inc.

1 Q. CAN YOU IDENTIFY THE CURRENT PROVIDERS ACROSS EACH OF
2 THE SERVICE FUNCTIONS?

3 A. Yes. The primary outsourcing providers during the Test Year are shown in
4 Table 1 below:
5

6 **Table 1 – Service Provider in Test Year**

Function	Provider
Information Technology (“IT”)	HCL America, Inc. (“HCL”), International Business Machines Corporation (“IBM”)
Customer Engagement (“CE”)	GC Services Limited Partnership (“GC Services”)
Supply Chain (“SC”)	CapGemini America, Inc. (“CGA”)
Finance & Accounting (“F&A”)	CGA
Human Resources (“HR”)	The Ultimate Kronos Group Inc. (“Ultimate”), Businessolver.com Inc. (“Businessolver”), Fidelity Management Trust Company (“Fidelity MTC”), and Fidelity Workplace Services LLC (“Fidelity WS”)

7

8

III. GOVERNANCE OF SERVICE PROVIDERS

9 Q. CAN YOU DEFINE THE GOVERNANCE FUNCTION IN THE CONTEXT
10 OF OUTSOURCING RELATIONSHIP MANAGEMENT?

11 A. Yes. The governance function includes the organization, process, and tools
12 required to manage outsourcing relationships. There are several elements
13 of a typical governance model, including those associated with commercial
14 interactions, performance, process, operation, organization, and

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1 relationship management. The investment in any of these areas should be
2 aligned with the size, complexity, and maturity of the outsourcing contracts
3 in the portfolio.

4 Q. WHY IS EFFECTIVE GOVERNANCE IMPORTANT TO SUCCESSFUL
5 OUTSOURCING RELATIONSHIPS?

6 A. Poor performance or financial results in outsourcing relationships are often
7 symptoms of insufficient attention to core governance practices. Effective
8 governance typically results in more transparency and faster corrective
9 actions when service quality and costs are a problem. Good governance
10 also helps ensure that the relationship (and related service quality and
11 value) does not deteriorate over time.

12 Q. DOES ONCOR HAVE GOVERNANCE PROCESSES IN PLACE?

13 A. Yes. Oncor has developed comprehensive and repeatable governance
14 processes to support its contracts with service providers.

15 Q. HAVE YOU REVIEWED THE GOVERNANCE ACTIVITIES PERFORMED
16 BY ONCOR AND ANY CHANGES TO THE PORTFOLIO OF SERVICE
17 PROVIDERS?

18 A. Yes, I reviewed documentation from Oncor regarding the processes used
19 to manage its outsourcing relationships. I also reviewed the change of
20 service providers in the HR function and the processes followed to source
21 and select a new service provider.

22 Q. DO YOU HAVE AN OPINION REGARDING THE PROCESSES USED BY
23 ONCOR TO GOVERN SERVICE PROVIDERS AND TO EVALUATE AND
24 EXECUTE CHANGES TO THE SERVICE PROVIDER PORTFOLIO?

25 A. Yes. Given the unique business drivers and functional costs under contract,
26 Oncor followed governance processes that were appropriate for the
27 portfolio of service provider contracts. There are regular, formal meetings
28 between Oncor and each service provider to discuss various topics
29 including service quality and open issues or changes. Periodic reviews of

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1 pricing and contract terms have occurred, and contracts have been
2 amended or extended. When the decision was made to evaluate services
3 from new providers, a competitive process was followed with support from
4 sourcing advisory firms that included the elements of an industry standard
5 sourcing process.

6 **IV. CURRENT SERVICE PROVIDER TEST YEAR COSTS**

7 Q. DID YOU REVIEW THE COSTS CHARGED BY THE SERVICE
8 PROVIDERS DURING THE TEST YEAR?

9 A. Yes. First, I reviewed the scope of services delivered by outsourcing
10 providers in each function and any changes in service delivery that occurred
11 since the end of 2016. I also reviewed the costs charged during the Test
12 Year by each service provider and the pro-forma adjustments to those
13 amounts made by Oncor. Finally, I compared the Test Year costs from each
14 service provider to the comparable costs included in Oncor's last base-rate
15 case, which was based on an adjusted test year ending December 31, 2016
16 (the "2016 Test Year").

17 Oncor witness Mr. Joel S. Austin also discusses the various
18 outsourcing relationships in his direct testimony.

19 Q. WHY HAVE YOU USED THE 2016 TEST YEAR AS A REFERENCE
20 POINT FOR EVALUATING THE REASONABLENESS OF THE TEST
21 YEAR COSTS?

22 A. The 2016 Test Year costs related to outsourcing providers were the subject
23 of my prior testimony before the Commission in Docket No. 46957 where I
24 addressed the reasonableness of those costs. After considering underlying
25 changes in service scope, service delivery and processing volumes, the
26 2016 Test Year costs provide a valuable point of reference for evaluating
27 the reasonableness of the service provider costs in the Test Year for this
28 case.

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1 Q. DID YOU REVIEW ACTUAL COSTS ASSOCIATED WITH THESE
2 SERVICE PROVIDERS FOR THE YEARS 2017 THROUGH 2021?

3 A. Yes, I analyzed cost trends and contract changes that were present during
4 those periods and determined that changes in those costs were reasonable
5 and consistent with changes in scope or volumes or other cost drivers.

6 Q. DID YOU ALSO REVIEW THE COSTS IN THE TEST YEAR CHARGED
7 BY OUTSOURCING PROVIDERS AND PRO-FORMA ADJUSTMENTS TO
8 THOSE AMOUNTS?

9 A. Yes. Analyses were prepared under my supervision and direction to identify
10 the Test Year costs for those services delivered by outsourcing providers.
11 The analysis considered changes to scope, pricing, and service delivery
12 model. The analysis also summarized the pro-forma adjustments to the
13 Test Year costs proposed by Oncor in this case to reflect expected cost
14 levels on a prospective basis.

15 Q. WHAT WAS THE OBJECTIVE OF THE ANALYSIS?

16 A. The objective was to develop a "like-for-like" comparison of costs between
17 the Company's last base-rate case and the costs proposed in this docket,
18 given the new scope, new contracts, and new underlying changes in
19 business activity between the prior and current test years.

20 Q. PLEASE DESCRIBE THE PROCESS AND THE RESULTING ANALYSIS
21 USED TO EVALUATE TEST YEAR COSTS.

22 A. The first objective was to evaluate any changes in scope of services under
23 the contracts from 2016 to 2021 within each function. This involved a review
24 of the in-scope service activities within each of the contracts and interviews
25 with Oncor personnel. For any scope changes identified, Company records
26 were reviewed and analysis developed to present the current costs to
27 deliver that scope.

28 Once comparable costs were identified, the variance between
29 periods was evaluated. Interviews with appropriate Oncor accounting and

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1 functional experts were performed, and analyses were prepared. Finally,
2 the findings were discussed with functional leaders to confirm that the
3 assumptions used and resulting conclusions were consistent with their
4 understanding of the broader business drivers affecting each function.
5 Results of this analysis are attached to my testimony as Exhibit MDS-1.

6 **A. Information Technology**

7 Q. PLEASE DESCRIBE THE CURRENT OUTSOURCING MODEL IN THE IT
8 FUNCTION.

9 A. HCL delivers infrastructure services and IBM delivers applications
10 development and maintenance services ("IT AD/M"). HCL began using an
11 updated service delivery model in October 2020 and IBM began using a
12 similar model in April 2022.

13 Q. HAS THE VOLUME OF IN-SCOPE SERVICES PROVIDED BY HCL AND
14 IBM INCREASED SINCE 2016?

15 A. Yes, as new systems have been implemented, requirements to support the
16 infrastructure and maintain the applications have grown. For example,
17 replacement of the Legacy Customer Information System with Oracle's
18 Customer Care & Billing ("CC&B") application and Oracle's market
19 transaction management ("MTM") application caused both additional
20 infrastructure services to manage the new systems environment and AD/M
21 services to maintain the new applications.

22 Q. HAVE YOU REVIEWED THE AMENDMENTS AND EXTENSIONS TO THE
23 HCL AND IBM CONTRACTS SINCE THE 2016 TEST YEAR?

24 A. Yes. A review of the amendments and extensions was performed to confirm
25 if the services scope materially changed and whether other changes made
26 were typical for contract amendments and extensions of this kind.

27 Q. WERE THERE MATERIAL CHANGES TO THE HCL OR IBM
28 CONTRACTS?

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1 A. Yes. Oncor entered into a new contract with HCL effective October 2020
2 that (1) changed some of the pricing structure to align with the new service
3 delivery model; and (2) added a second help desk support location. Oncor
4 also entered into a new contract with IBM in December 2021 (with an
5 effective date of April 1, 2022) that changed the pricing structure and
6 provided for the flexibility to add a second service delivery location.

7 Q. PLEASE EXPLAIN THE PRICING MODEL DIFFERENCES IN THE HCL
8 AND IBM CONTRACTS?

9 A. Historically, HCL and IBM operated in a managed services model by
10 charging Oncor a rate per resource (for example, a UNIX server) times the
11 number of resources HCL or IBM supported. The total charges change as
12 the number of resources goes up or down on a monthly basis. HCL and IBM
13 each determine the number of people necessary (both onshore and
14 offshore) to support the environment or development needs at contracted
15 service levels. Under the new capacity model with HCL and IBM (with the
16 exception of help desk services in the HCL contract), resources are defined
17 as the number of people (both onshore and offshore) required to support a
18 category of services (for example Workforce Enablement). These base
19 charges can change if Oncor requests an increase or decrease in the
20 number of resources from HCL or IBM.

21 Q. WHAT WAS THE BASIS TO CHANGE THE PRICING MODEL IN THE HCL
22 AND IBM CONTRACTS?

23 A. Oncor's objective was to adapt the outsourcing contract to promote a more
24 flexible delivery of technology solutions that are aligned with industry best
25 practices. A managed service model relies on the supplier to manage the
26 daily operational activities based on pre-determined contractual
27 requirements. A capacity model allows the client to dynamically prioritize
28 activities (operational or enhancement) based on the current needs of the
29 business. The new model pricing is appropriate for companies like Oncor

1 with (1) mature service provider relationships; (2) a high level of trust and
2 effective communications with the service providers; and (3) strong
3 capabilities to forecast fluctuations in demand. While it requires Oncor
4 operations resources to take a more frequent and active role in aligning
5 staffing with desired outcomes, these types of contractual changes can
6 improve cost predictability and minimize contract changes and/or
7 amendments. Please see the direct testimony of Company witness Mr.
8 Austin for additional information regarding the Company's objectives and
9 decisions related to changes in the HCL and IBM contracts.

10 Q. WHAT WAS THE PURPOSE OF ADDING A SECOND HELP DESK
11 SUPPORT LOCATION IN THE HCL CONTRACT?

12 A. The purpose of the second help desk location was to improve redundancy
13 and risk mitigation in the event of a disaster, and improve customer
14 experience, both of which are consistent with industry practices.

15 Q. DID YOU REVIEW THE PROCESS THAT ONCOR EXECUTED TO
16 RENEGOTIATE THE HCL CONTRACT?

17 A. Yes. In 2019, the Company launched an in-depth review of all HCL services
18 and launched a sourcing process to explore alternatives. Oncor performed
19 a spot market check to evaluate HCL's current pricing and then worked with
20 HCL to redesign the existing contract. The Company prepared a business
21 case that included these options plus maintaining the prior HCL contract
22 and in-sourcing those services, and ultimately selected the new capacity-
23 based contract with HCL.

24 Q. DID YOU REVIEW THE PROCESS THAT LED TO THE EXECUTION OF
25 THE RENEGOTIATED IBM CONTRACT?

26 A. Yes. I reviewed the Transaction Decision Paper that was prepared to seek
27 executive approval of the new contract. The document included the
28 expected cost savings, alternatives to a new contract and key risks and
29 mitigation strategies.

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1 Q. IS A CONTRACT RENEGOTIATION VERSUS A COMPETITIVE
2 SOURCING EVENT TYPICAL IN THE OUTSOURCING MARKET?

3 A. Yes, especially for mature, stable outsourcing relationships where service
4 quality is satisfactory. There is typically a significant cost and potential for
5 service quality disruption in connection with transitioning services to a new
6 provider. In addition, transitioning to a new provider during the COVID-19
7 pandemic would have presented significant challenges.

8 Q. DID YOU PERFORM A REVIEW OF THE PRICING IN THE HCL AND IBM
9 CONTRACTS?

10 A. Yes. Pricing in both the HCL and IBM contracts were compared to market
11 rates sourced from KPMG's proprietary and functional benchmarking
12 database. The database has over 155,000 ITO and BPO price points and
13 over 104,500 rate card price points from over 510 contracts across multiple
14 industries. Domestic companies with revenue ranging from \$1 billion to \$42
15 billion, from industries including Energy and Chemicals, Healthcare,
16 Pharma and Retail were used as comparative data. For HCL, hourly rates
17 for contracted resources in three service areas (Integrated Platforms,
18 Workforce Enablement and SmartGrid, Communications, & Controls) were
19 selected for pricing comparison. These three service areas comprise 76%
20 of HCL base charges. For IBM, hourly rates in the new contract comprising
21 76% of the roles in the projected staffing matrix were selected for pricing
22 comparison. Overall, the resource unit pricing and hourly rates for both HCL
23 and IBM remained within market ranges (defined as between the 25th and
24 75th percentile) for similar scope and services.

25 Q. WHAT WERE THE TEST YEAR COSTS FOR THE OUTSOURCED
26 ACTIVITIES IN THE IT FUNCTION?

27 A. The cost of providing IT services under the HCL and IBM contracts in the
28 2016 Test Year (after pro forma adjustments) was approximately \$19.8
29 million. The Test Year cost incurred by Oncor for the IT services described

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1 above was approximately \$34.1 million. As described in the direct
2 testimony of Oncor witness Mr. Austin, known and measurable changes in
3 the Test Year costs have been made that are related to COLA adjustments,
4 new resources added in the fourth quarter of 2021 for the HCL agreement,
5 annualizing the new IBM agreement effective April 1, 2022, and to account
6 for expenses associated with certain capital retirements as discussed in the
7 direct testimony of Oncor witness Ms. Malia A. Hodges. After pro-forma
8 adjustments, the cost for these services is \$32.2 million. Please see Exhibit
9 MDS-1 attached to my testimony for a comparison of 2016 and 2021 costs.

10 Q WHAT DROVE THE INCREASE IN COSTS FOR THE TEST YEAR IN
11 THIS CASE, AS COMPARED TO THE 2016 TEST YEAR?

12 A. Drivers for cost increases include: the addition of AMS costs that were
13 previously recovered by Oncor in a separate tracking account prior to 2017,
14 services for applications that were implemented and/or enhanced,
15 increased focus on security, and COLA adjustments for IT services.

16 **B. Customer Engagement**

17 Q. PLEASE DESCRIBE THE CURRENT OUTSOURCING MODEL IN THE
18 CUSTOMER ENGAGEMENT FUNCTION.

19 A. GC Services is currently delivering Contact Center services within the CE
20 function.

21 Q. DID YOU PERFORM A REVIEW OF THE GC SERVICES PRICING?

22 A. Yes. An analysis was prepared to compare the primary resource units to
23 market pricing for similar resource units. Market pricing was derived from
24 the KPMG database as described above, Economic Research Institute and
25 ContactBabel's US Contact center guide. Overall, the resource unit pricing
26 remained within acceptable market ranges (defined as between the 25th and
27 75th percentile) for similar scope and services.

28 Q WHAT WERE THE TEST YEAR COSTS FOR THE OUTSOURCED
29 ACTIVITIES IN THE CE FUNCTION?

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1 A. The cost of services under the GC Services contract in the 2016 Test Year
2 (after pro-forma adjustments) was approximately \$6.4 million. The Test
3 Year cost incurred by Oncor for the CE services described above was
4 approximately \$8.1 million. As described in the direct testimony of Oncor
5 witness Mr. Austin, known and measurable changes in the Test Year costs
6 have been made that are related to an amendment to the contract. After
7 pro-forma adjustments, the Test Year cost for these services was
8 approximately \$8.2 million. Please see Exhibit MDS-1 attached to my
9 testimony for a comparison of 2016 and 2021 costs.

10 **C. Supply Chain**

11 Q. PLEASE DESCRIBE THE CURRENT OUTSOURCING MODEL IN THE
12 SUPPLY CHAIN FUNCTION.

13 A. CGA provides transactional SC support (e.g. purchase order prep, credit
14 risk management, supplier diversity) in a similar service delivery model as
15 in 2016. The contract was amended in June 2020 to extend the term until
16 July 2025 with substantially the same scope and terms.

17 Q. DID THE COMPANY COMPETITIVELY BID THE SCOPE OF WORK IN
18 CONNECTION WITH THE EXTENTION?

19 A. No. Given the cost and complexity to undertake a competitive sourcing
20 process and transition services during the pandemic, Oncor decided to
21 extend the term with CGA. CGA resources are also tightly integrated with
22 Oncor resources and processes and deliver a high level of service.

23 Q. DID YOU PERFORM A REVIEW OF THE CGA PRICING?

24 A. Yes. The amended contract includes the projected resource requirements
25 and the functional activities to be performed in the SC function. The skill
26 levels and years of experience were estimated for the projected resources
27 and validated with Oncor. Using hourly market rate data from HFS
28 Research for the projected resources, we calculated an acceptable market

1 range of monthly costs for the services provided. Oncor's monthly charges
2 fell within that market range.

3 Q. WHAT WERE THE TEST YEAR COSTS FOR THE OUTSOURCED
4 ACTIVITIES IN THE SC FUNCTION?

5 A. The O&M cost of providing SC services under the CGA contract in the 2016
6 Test Year was approximately \$27,000. The Test Year cost incurred by
7 Oncor for the SC services described above was approximately \$102,000.
8 Please see Exhibit MDS-1 attached to my testimony for a comparison of
9 2016 and 2021 costs.

10 **D. Finance & Accounting**

11 Q. PLEASE DESCRIBE THE CURRENT OUTSOURCING MODEL IN THE
12 FINANCE & ACCOUNTING FUNCTION.

13 A. CGA provides transactional F&A activities (e.g., invoice processing, general
14 ledger and fixed asset accounting) in a similar service delivery model as in
15 2016. The contract was amended in June of 2020 to extend the term until
16 July 2025 with substantially the same scope and terms.

17 Q. DID THE COMPANY COMPETITIVELY BID THE SCOPE OF WORK IN
18 CONNECTION WITH THE EXTENTION?

19 A. No. As described above related to the SC contract, Oncor decided to
20 renegotiate a new contract with CGA on a sole-source basis.

21 Q. DID YOU PERFORM A REVIEW OF THE CGA PRICING?

22 A. Yes. The amended contract includes the projected resource requirements
23 and the functional activities to be performed in the F&A function. The skill
24 levels and years of experience were estimated for the projected resources
25 and validated with Oncor. Using hourly market rate data from HFS
26 Research for the projected resources, we calculated an acceptable market
27 range of monthly costs for the services provided. Oncor's monthly charges
28 fell within that market range.

1 Q WHAT WERE THE TEST YEAR COSTS FOR THE OUTSOURCED
2 ACTIVITIES IN THE F&A FUNCTION?

3 A. The cost of providing F&A services under the CGA contract in the 2016 Test
4 Year was approximately \$0.9 million. The Test Year cost incurred by Oncor
5 for the F&A services described above was approximately \$1.4 million.
6 Please see Exhibit MDS-1 attached to my testimony for a comparison of
7 2016 and 2021 costs.

8 **E. Human Resources**

9 Q. PLEASE DESCRIBE THE CURRENT OUTSOURCING MODEL IN THE
10 HR FUNCTION.

11 A. In 2019, Oncor executed a sourcing and selection process to contract for
12 technology and managed HR and payroll services provided previously by
13 another vendor. Ultimate was selected and a new contract was executed
14 with an effective date of May 6, 2019, using a Software As A Service
15 ("SAAS") model. Commencement of services were delayed until July 1,
16 2020, due to the pandemic. The only scope formerly provided by the other
17 vendor not covered by the Ultimate contract was for retiree benefit
18 technology and managed services that was awarded to Businessolver.
19 Services under the Businessolver contract commenced in October 2019.
20 Fidelity MTC (defined benefit services) and Fidelity WS (defined
21 contribution services) delivered substantially the same service to Oncor in
22 2016 as was reflected in 2021.

23 Q. PLEASE DESCRIBE SAAS AS IT RELATES TO SERVICE DELIVERY IN
24 THE HR FUNCTION.

25 A. SAAS is a software licensing and delivery model in which software is
26 licensed on a subscription basis and is centrally hosted by a third party. The
27 outsourcing provider uses the software to deliver services as an alternative
28 to an on-premise technology platform that either exists at the customer or
29 would need to be implemented in connection with transitioning services.

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1 Q. IS SAAS COMMON AS A SERVICE DELIVERY MODEL IN HR
2 OUTSOURCING?
3 A. Yes. As SAAS solutions in HR have matured, many companies have
4 evaluated and implemented SAAS in both in-sourced and outsourced
5 environments.
6 Q. DID THE SOURCING AND SELECTION PROCESSES FOR HR
7 SERVICES FOLLOW AN INDUSTRY STANDARD APPROACH?
8 A. Yes. The process included the following activities:
9 • The Oncor team worked with third-party advisors to understand the
10 pool of potential software solutions and providers and assist with
11 executing a sourcing and selection process.
12 • Oncor selected seven providers to participate in a Request for
13 Information and selected four to receive a Request for Proposal
14 (“RFP”). Three providers delivered a response to the RFP.
15 • The Company reviewed competitive pricing and solution design
16 proposals.
17 • Oncor conducted site visits and reference checks for the two finalists.
18 • Oncor selected Ultimate and then undertook a due diligence period
19 to validate assumptions made during the selection process.
20 • The parties then negotiated contract terms, staffing levels, transition
21 plans and work plans that ultimately resulted in an executed contract.
22 • The Company executed a similar sourcing process that resulted in
23 the selection of Businessolver for retiree benefits administration.
24 Please see the direct testimony of Company witness Mr. Austin for
25 additional information regarding the Company’s objectives and decisions
26 related to service delivery in the HR function.
27 Q. DID YOU PERFORM A REVIEW OF ULTIMATE OR BUSINESSOLVER
28 PRICING?

1 A. No. The Ultimate and Businessolver pricing resulted from a recent,
2 competitively-bid sourcing process and, therefore, is market-priced for the
3 scope and volume of services.

4 Q. DID YOU PERFORM A REVIEW OF THE FIDELITY PRICING?

5 A. The Fidelity costs represent less than 15% of the Test Year HR costs and
6 a price comparison was not performed. Fidelity did agree to a fee reduction
7 effective January 1, 2022, following a market price review.

8 Q. WHAT WERE THE TEST YEAR COSTS FOR THE OUTSOURCED
9 ACTIVITIES IN THE HR FUNCTION?

10 A. The cost incurred by Oncor for HR services under the outsourcing contracts
11 in the 2016 Test Year (after pro-forma adjustments) was approximately \$3.4
12 million. The Test Year cost incurred by Oncor for the HR services described
13 above was approximately \$4.3 million. As described in the direct testimony
14 of Oncor witness Mr. Austin, known and measurable changes in the Test
15 Year costs have been made to exclude out of period charges from the Test
16 Year and to reflect the reduction in Fidelity MTC fees. After pro-forma
17 adjustments, the cost for these services is \$3.8 million. Please see Exhibit
18 MDS-1 attached to my testimony for a comparison of 2016 and 2021 costs.

19 **F. Reasonableness of Test Year Costs for Outsourcing Contracts**

20 Q. ARE THE TEST YEAR COSTS ASSOCIATED WITH THE OUTSOURCED
21 SERVICES DESCRIBED IN YOUR TESTIMONY REASONABLE AS
22 COMPARED TO THE 2016 TEST YEAR COSTS?

23 A. Yes. Based on my review of the costs for the twelve-month period ended
24 December 31, 2021, for each service provider and the related pro-forma
25 adjustment as described above, the costs are reasonable and reflect the
26 pricing in the current contracts, current service delivery model, and current
27 support requirements. The resource units and hourly rates that form the
28 basis for billing under the outsourcing contracts fall within market ranges for
29 similar scope and service.

1 **V. SUMMARY AND CONCLUSION**

2 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

3 A. Oncor has a very mature outsourcing capability that has evolved since the
4 original sourcing events in 2004. The Company has established
5 governance processes to manage the commercial aspects of the contracts
6 and to evaluate pricing and service providers as contracts come to end of
7 term. Oncor's processes for selecting new service providers or re-
8 contracting with existing service providers follow industry standards. The
9 Company's decisions to renegotiate or extend contracts without a
10 competitive process were prudent based on existing service levels and
11 experience, costs, and expected benefits.

12 The Test Year costs, as adjusted, reflect the expected costs from the
13 current outsourcing contracts. The costs are reasonable based on
14 comparisons to market pricing for comparable services when compared to
15 the cost experienced under the outsourcing agreements as reflected in the
16 Company's last base-rate case. The services provided are also necessary
17 for the continuing operation of Oncor.

18 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

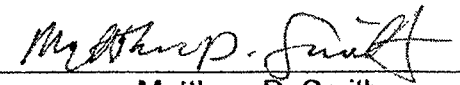
19 A. Yes, it does.

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STATE OF ILLINOIS §
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COUNTY OF COOK §

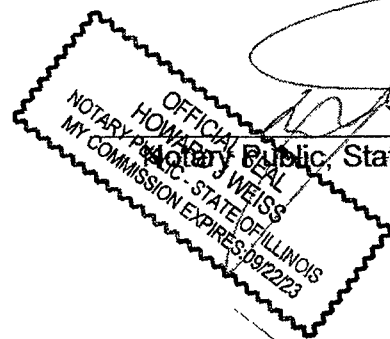

BEFORE ME, the undersigned authority, on this day personally appeared Matthew D. Smith who, having been placed under oath by me, did depose as follows:

My name is Matthew D. Smith. I am of legal age and a resident of the State of Illinois. The foregoing direct testimony and attached exhibits 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.



Matthew D. Smith

SUBSCRIBED AND SWORN TO BEFORE ME by the said Matthew D. Smith
this 14 day of April, 2022.

Notary Public, State of Illinois

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Analysis of Oncor Outsourcing Costs

Test Year Ending December 31, 2021

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 - Finance & Accounting (FA)
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Summary Comparative Analysis by Service Provider/Test Period

(\$000's)

Base Cost by Service Provider (O&M)	Adjusted 2016	Adjusted 2021	2021 % Change from 2016	\$ Increase from 2016 to 2021	Cost Change Detail
HCL	\$11,151	\$18,787	68%	\$7,636	Additional cybersecurity, disaster recovery, deskside and data center support, COLA, and AMS costs.
IBM	\$8,686	\$13,419	54%	\$4,733	Additional support for CC&B, disaster recovery, COLA, AMS costs, offset by new contract effective April 2022.
GC Services	\$6,387	\$8,091	27%	\$1,703	CC&B implementation, rate adjustment, and COLA.
Fidelity	\$344	\$510	48%	\$166	SRP Mandatory Cashout and Beneficiary Project.
Ultimate Software	N/A	\$2,514	N/A	N/A	New services, went live in July 2020.
Businessolver	N/A	\$752	N/A	N/A	New services, went live in October 2019.
NgA	\$3,086	N/A	N/A	N/A	Transitioned services to Ultimate and Businessolver.
CapGemini-SC	\$27	\$102	279%	\$75	Additional volume, COLA
CapGemini-FA	\$895	\$1,392	56%	\$497	Additional volume, COLA.
Total	\$30,576	\$45,567	49%	\$14,991	

Note: All acronyms included in Exhibit MDS-1 are defined in the direct testimony of Company witness Mr. Matthew D. Smith

IT Analysis

(\$000's)

Cost by Service Provider (O&M only)	Adjusted 2016	2021	2021 Adjustments	Adjusted 2021	2021 % Change from 2016
HCL	\$11,151	\$18,565	\$222	\$18,787	68%
IBM	\$8,686	\$15,556	(\$2,137)	\$13,419	54%
Total	\$19,837	\$34,121	(\$1,915)	\$32,207	62%

Observations and Comments:

- Prior to 2017, Advanced Metering Systems (AMS) costs were recovered in a separate tracking account. The increase in O&M costs related to AMS in 2017 were \$2,890 and \$3,821 for HCL and IBM respectively.
- IBM's and HCL's services expanded to support the new Customer Care & Billing (CC&B) system, cybersecurity and to provide additional disaster recovery support. Costs also increased due to annual COLA adjustments.
- Oncor entered into a new contract with IBM effective April 2022 with a lower annual base cost. The adjustments above annualize that reduction.
- HCL adjustments reflect additional resources added to the contract in the 4th quarter of 2021.
- Adjustment to HCL and IBM costs were also made to account for expenses associated with certain capital retirements.

CE Analysis

(\$000's)

Cost By Service Provider (O&M Only)	Adjusted 2016	2021	2021 Adjustments	Adjusted 2021	2021 % Change from 2016
GC Services	\$6,387	\$8,091	\$153	\$8,244	29%
Total	\$6,387	\$8,091	\$153	\$8,244	29%

Observations and Comments:

- Increase from 2016 to 2020 resulted primarily from implementing a new Customer Care & Billing (CC&B) system in 2017 and COLA adjustments.
- 2021 adjustments to annualize rate changes effective April 1, 2021.

SC Analysis

(\$000's)

Cost by Service Provider (O&M Only)	Adjusted 2016	2021	2021 Adjustments	Adjusted 2021	2021 % Change from 2016
CapGemini	\$27	\$102	\$0	\$102	279%
Total	\$27	\$102	\$0	\$102	279%

Observations and Comments:

- Cost increase results from increased volume of SC activity and COLA.

FA Analysis

(\$000's)

Cost by Service Provider (O&M Only)	Adjusted 2016	2021	2021 Adjustments	Adjusted 2021	2021 % Change from 2016
CapGemini	\$895	\$1,392	\$0	\$1,392	56%
Total	\$895	\$1,392	\$0	\$1,392	56%

Observations and Comments:

- Cost increase results from increased volume of FA activity and COLA.

HR Analysis

(\$000's)

Cost by Service Provider (O&M Only)	Adjusted 2016	2021	2021 Adjustments	Adjusted 2021	2021 % Change from 2016
Fidelity	\$344	\$575	(\$65)	\$510	48%
Ultimate Software	N/A	\$2,897	(\$383)	\$2,514	N/A
Businesssolver	N/A	\$810	(\$59)	\$752	N/A
NgA	\$3,086	\$0	N/A	\$0	(100%)
Total	\$3,430	\$4,282	(\$507)	\$3,776	10%

Observations and Comments:

- Oncor transitioned service from NgA to Ultimate (July 2020) and Businesssolver (October 2019). Ultimate Software is used for payroll, benefits for active employees, compensations, garnishments, learning, recruiting, onboarding, and case management. Businesssolver provides health and welfare benefits for retirees, and American Care Act reporting for all employees.
- 2021 adjustments were made to eliminate out of period charges from the 2021 Test Year and to reflect Fidelity fee decrease.

**2022 RATE CASE
ONCOR ELECTRIC DELIVERY COMPANY LLC
WORKPAPERS FOR
THE DIRECT TESTIMONY OF
MATTHEW D. SMITH**

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

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

Testimony Workpapers/Confidential/Smith

Work Paper Benchmarking Summary Msmith Outsourced.xlsx

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OF MICHAEL G. GRABLE, WITNESS FOR
ONCOR ELECTRIC DELIVERY COMPANY LLC**

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**Grable - Direct
Oncor Electric Delivery
2022 Rate Case**

1 **DIRECT TESTIMONY OF MICHAEL G. GRABLE**

2 **I. POSITION AND QUALIFICATIONS**

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

5 A. My name is Michael G. Grable. My business address is 1616 Woodall
6 Rodgers Freeway, Dallas, Texas 75202. I am Vice President, Chief
7 Sustainability, Compliance, and Risk Officer for Oncor Electric Delivery
8 Company LLC ("Oncor" or "Company").

9 Q. PLEASE DISCUSS YOUR EDUCATIONAL BACKGROUND AND
10 PROFESSIONAL EXPERIENCE.

11 A. I hold a Bachelor's degree from Duke University and a Juris Doctor degree
12 from the College of William and Mary School of Law. I began working for
13 Oncor in 2018 as Vice President, Corporate Development & Strategy. In
14 2021, I assumed my current title and responsibilities. Before joining Oncor,
15 I was the President of Lone Star Transmission, LLC ("Lone Star"), a position
16 that I began in April 2010. I served as Vice President, General Counsel,
17 and Corporate Secretary for the Electric Reliability Council of Texas, Inc.
18 ("ERCOT") from January 2008 until April 2010 and as ERCOT's Assistant
19 General Counsel for Regulatory Affairs from October 2006 until January
20 2008. Before joining ERCOT, I was employed by the Public Utility
21 Commission of Texas ("Commission") as Advisor to then-Commissioner
22 Barry T. Smitherman from May 2004 until September 2006, and as a Senior
23 Attorney in the then-Policy Development Division of the Commission from
24 October 2003 until May 2004. I also worked as an associate attorney on
25 telecommunications and technology regulatory matters at two Washington,
26 D.C. law firms, Crowell & Moring LLP and Harris Wiltshire & Grannis LLP,
27 between 1998 and September 2003, and I served as briefing attorney to
28 Texas Supreme Court Justice Craig Enoch in the 1997-1998 court term.

1 Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

2 A. In my current role, in addition to certain regulatory and risk-management
3 activities, my responsibilities as Chief Compliance Officer include ensuring
4 that Oncor understands those laws and regulations applicable to the
5 Company and has the processes, systems, and people in place to ensure
6 and track compliance. And finally, as Chief Sustainability Officer, I am
7 responsible for coordinating the Company’s strategy with respect to its
8 sustainability goals, reporting, and rating relationships, and—in
9 coordination with Oncor Treasury—for the sustainability aspects of Oncor’s
10 finance activities.

11 Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

12 A. Yes. Most recently, I filed written testimony on behalf of Oncor in Docket
13 No. 50893. I have previously testified in several dockets before the
14 Commission on behalf of Lone Star, including Docket Nos. 38230, 39551,
15 40020, and 42469, and I filed written testimony on behalf of Lone Star in
16 Docket Nos. 40798, 41378, and 41765. I also appeared before the
17 Commission multiple times as counsel to ERCOT.

18 **II. PURPOSE OF DIRECT TESTIMONY**

19 Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

20 A. The purpose of my direct testimony is to: (1) describe the standards by
21 which the Commission reviews affiliate transactions and how Oncor has
22 presented its affiliate expenses and schedules in this case; (2) describe
23 affiliate services provided to Oncor during the test-year period ending
24 December 31, 2021 (“Test Year”); (3) describe known and measurable
25 changes to the affiliate expenses that have been made to the cost of
26 service; (4) describe services provided to affiliates from Oncor during the
27 Test Year; (5) describe Oncor’s efforts to conduct its business in compliance
28 with the Commission’s affiliate rules; and (6) describe the Company’s
29 platforms for sustainability along with its environmental, social, and

1 governance (“ESG”) initiatives. I also sponsor or co-sponsor Schedules V-
2 K-1 through V-K-14 required under the Commission’s Investor-Owned
3 Utility Transmission & Distribution Cost of Service Rate Filing Package
4 (“RFP”).

5 Q. WERE YOUR TESTIMONY AND THE RFP SCHEDULES YOU SPONSOR
6 PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

7 A. Yes. My testimony, workpapers, and the schedules that I sponsor or co-
8 sponsor were prepared by me or under my direction, supervision, or control
9 and are true and correct. I will address each topic in the same order
10 reflected in the above listing.

11 **III. STANDARDS FOR AFFILIATE TRANSACTIONS**

12 Q. ARE YOU FAMILIAR WITH THE STATUTORY STANDARDS USED BY
13 THE COMMISSION TO DETERMINE THE REASONABLENESS OF
14 EXPENSES ASSOCIATED WITH AFFILIATE TRANSACTIONS AND
15 THEIR INCLUSION IN RATES?

16 A. Yes. I am familiar with and have reviewed Public Utility Regulatory Act
17 (“PURA”) § 36.058, which establishes the affiliate transaction standard to
18 be applied by the Commission. In summary, PURA § 36.058 requires that
19 each item or class of items charged by an affiliate of the utility under review
20 be found to be reasonable and necessary and not higher than charges to a
21 third party or other affiliate for the same item or class of items. Additionally,
22 PURA § 36.058(f) provides that if the regulatory authority finds that an
23 affiliate expense for the test period is unreasonable, then the regulatory
24 authority shall determine the reasonable level of the expense and include
25 that expense in determining the electric utility’s cost of service.

26 Q. HOW HAS ONCOR PRESENTED SUPPORT FOR AFFILIATE
27 EXPENSES IN THIS PROCEEDING?

28 A. Oncor’s affiliate expenses are presented by item or class of item as required
29 by the RFP. The Company defined and utilized four classes and nine

1 subclasses of items. Oncor’s affiliate expenses are presented in Schedule
2 V-K-1 by Federal Energy Regulatory Commission (“FERC”) account,
3 grouped, and subtotaled by class of items for the Test Year. A description
4 of each item, the billing methodology, and the amount billed for each item
5 are presented in Schedules V-K-4, V-K-11, and V-K-12, respectively.

6 Q. WHY IS IT IMPORTANT THAT ONCOR RECOVER THE AMOUNTS IT
7 PAYS TO AFFILIATES AS PART OF ITS COST OF SERVICE?

8 A. To the extent that Oncor receives and pays for services provided by an
9 affiliate, Oncor does so either because (1) the affiliate is a qualified, cost-
10 effective vendor to provide the service in question, and/or (2) Oncor is
11 receiving a tariffed service at rates set by the Commission from the only
12 logical transmission service provider for that transaction, which just
13 happens to be an affiliate. If Oncor is not permitted to recover these affiliate
14 costs, then it might be forced to consider selecting service providers who
15 are less qualified and potentially more expensive than affiliated service
16 providers.

17 **IV. OVERVIEW OF AFFILIATE SERVICES/TRANSACTIONS**
18 **PROVIDED TO ONCOR FROM AFFILIATES**

19 Q. PLEASE SUMMARIZE ONCOR’S RELATIONSHIPS WITH THE
20 AFFILIATES THAT PROVIDED SERVICES TO ONCOR DURING THE
21 TEST YEAR.

22 A. Oncor Electric Delivery Holdings Company LLC (“Oncor Holdings”), which
23 is indirectly and wholly owned by Sempra Energy (“Sempra”), owns
24 approximately 80% of Oncor’s outstanding membership interests, with the
25 remainder held by Oncor’s minority owner, Texas Transmission Investment
26 LLC (“TTI”). TTI is essentially composed of two indirect owners: (1) OMERS
27 Administration Corporation (“OMERS”), acting through its infrastructure
28 investment entity, OMERS Infrastructure Management Inc.; and (2) Cheyne
29 Walk Investment Pte Ltd., which is managed and controlled by GIC Special

1 Investments Pte Ltd, an entity wholly owned by GIC Private Limited (“GIC”).
2 Oncor is ring-fenced from both Sempra and TTI (and, thereby, from OMERS
3 and GIC).

4 As discussed later in my direct testimony, Sempra provided certain
5 services to Oncor during the Test Year, as did two investees of GIC—
6 Ultimate Kronos Group Inc. (“Ultimate”) and Veritas Technologies LLC
7 (“Veritas”). In addition, as a result of transactions approved by the
8 Commission in Docket No. 48929, Oncor Electric Delivery Company NTU
9 LLC (“Oncor NTU”) and Sharyland Utilities, L.L.C. (“Sharyland”) are
10 affiliates of Oncor, and both had transactions with Oncor during the Test
11 Year. Finally, Oncor contributed to and paid expenses on behalf of the
12 Oncor Cares Foundation—another affiliate of Oncor—during the Test Year.
13 The nature of these affiliate relationships and the services provided to
14 Oncor are discussed in greater detail below, and additional descriptions of
15 the services provided to Oncor are included in Schedule V-K-4.

16 **A. Services Provided by Sempra to Oncor**

17 Q. WHAT SERVICES DID SEMPRA PROVIDE TO ONCOR DURING THE
18 TEST YEAR?

19 A. Sempra provided tax-related services to Oncor based on a Services
20 Agreement and associated Statements of Work (copies of which are
21 provided in my direct testimony workpapers). In her direct testimony,
22 Company witness Ms. Bonnie L. Clutter provides additional information on
23 the tax services provided by Sempra and explains why these services were
24 reasonable and necessary.

25 Q. HOW DID SEMPRA CHARGE ONCOR FOR THESE TAX-RELATED
26 SERVICES PROVIDED DURING THE TEST YEAR?

27 A. Sempra assigned charges for this work to Oncor and billed Oncor, in
28 accordance with the parties’ Services Agreement, under three separate
29 Statements of Work (Taxes – Consulting Related to Uncertain Tax

1 Positions, Taxes – Annual Tax Return Review, and Taxes – Annual Corp
2 Tax Access). The Services Agreement requires Oncor to reimburse
3 Sempra for costs and expenses that are incurred by Sempra in connection
4 with the provision of services, including documented out-of-pocket costs
5 and expenses, and it states that fees and rates for the services shall not
6 include a markup or profit nor be higher than the fees and rates charged by
7 Sempra for the same item or class of items to Sempra’s other affiliates or
8 divisions or to nonaffiliated persons within the same market area or having
9 the same market conditions.

10 Q. PLEASE DESCRIBE THE COST ASSIGNMENT METHODOLOGY USED
11 BY SEMPRA TO BILL ONCOR DURING THE TEST YEAR.

12 A. A description of the cost assignment methodology used to assign costs for
13 the tax-related services billed to Oncor during the Test Year is provided in
14 Schedule V-K-11 of the RFP. This billing methodology is based on the
15 principle of cost causation and reflects how the costs were incurred.

16 Q. HOW DO SEMPRA AND ONCOR REVIEW AND CONTROL THE COSTS
17 OF THE SERVICES RECEIVED BY ONCOR FROM SEMPRA?

18 A. As set out in Schedule V-K-10, Sempra and Oncor annually review
19 Sempra’s Statements of Work to ensure that the fees charged to Oncor for
20 tax services continue to be comparable to or below the amount of fees
21 previously charged to Oncor by outside tax service providers. Oncor
22 periodically reviews billings from Sempra to confirm that Sempra’s charges
23 are not exceeding the fee estimates provided at the beginning of each year
24 by Sempra.

25 Q. WAS THE COST ASSIGNMENT METHODOLOGY USED TO
26 DETERMINE THE AMOUNT OF SEMPRA’S TAX SERVICES COSTS
27 BILLED TO ONCOR AND INCLUDED IN ONCOR’S REQUESTED COST
28 OF SERVICE FOR THE TEST YEAR REASONABLE?

1 A. Yes. The cost assignment methodology used to calculate the costs billed
2 to Oncor by Sempra and included in Oncor's requested cost of service is
3 based on the principle of cost causation, and the requested amounts
4 reasonably reflect the actual cost of the services provided to Oncor.

5 Q. DO THE SEMPRA TAX SERVICE EXPENSES REQUESTED BY ONCOR
6 IN ITS COST OF SERVICE MEET THE AFFILIATE STANDARD SET OUT
7 IN PURA § 36.058?

8 A. Yes. The Sempra tax service expenses that Oncor is requesting in its cost
9 of service meet the affiliate standard. In addition, to Oncor's knowledge,
10 Sempra does not bill any other entities for the same specific types of tax
11 services, without also billing them for additional more comprehensive tax
12 services. As a result, the tax services for which Sempra charges Oncor are
13 unique and, therefore, the charges for them are no higher than the prices
14 charged to other subsidiaries, divisions, or to other unaffiliated companies
15 for the same item or class of items. The expenses were accounted for and
16 consistently applied in the manner that I have discussed.

17 **B. Services provided by Ultimate and Veritas to Oncor**

18 Q. WHAT SERVICES DID ULTIMATE PROVIDE TO ONCOR DURING THE
19 TEST YEAR?

20 A. During the Test Year, Ultimate (an entity in which GIC has invested)
21 provided payroll administration and other human resource services. In his
22 direct testimony, Company witness Mr. Joel S. Austin provides additional
23 detail on why Ultimate was selected to provide these human resource
24 services and discusses the primary terms of the contract with Ultimate.
25 Company witness Mr. Matthew D. Smith also provides details on the
26 contract entered with Ultimate.

27 Q. HOW DID ULTIMATE CHARGE ONCOR FOR THE PAYROLL
28 ADMINISTRATION AND HUMAN RESOURCES SERVICES PROVIDED
29 DURING THE TEST YEAR?