

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION

Complainant,

v.

NORTHWEST NATURAL GAS  
COMPANY,

Respondent.

DOCKET UG-\_\_\_\_\_

**NORTHWEST NATURAL GAS COMPANY**

**Direct Testimony of Jim R. Downing**

**INFORMATION TECHNOLOGY & SERVICES**

**Exh. JRD-1T**

**December 18, 2020**

**DIRECT TESTIMONY OF JIM R. DOWNING**

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**I. INTRODUCTION AND SUMMARY**

**Q. Please state your name, address and position.**

A. My name is Jim Downing. I work for Northwest Natural Gas Company (“NW Natural” or “Company”) located at 250 SW Taylor Street in Portland, Oregon. My title is Vice President and Chief Information Officer. I am responsible for NW Natural’s information technology and services (“IT&S”), including cyber security, the information technology (“IT”) desk, and technology-related architecture, infrastructure network, and applications—all of which enable NW Natural to support our customers and operations successfully.

**Q. Please summarize your educational background and business experience.**

A. I have an undergraduate degree in Business Science Information Systems and received a Master of Business Administration from Tulane. I have earned my Microsoft Certified Systems Engineer credential and am a Cisco Certified Design Associate. I have been an IT&S professional since 1995. Prior to NW Natural, I worked as a Customer Contact and Help Desk consultant, helped consolidate European Help Desk services for Compaq, and provided IT&S support for major oil and gas companies for 17 years. Recently, I was recognized by Governor Kate Brown for helping to evaluate and create a multi-year IT strategy for the State of Oregon. I joined NW Natural in 2017.

**Q. Please summarize your testimony.**

A. My testimony describes NW Natural’s IT&S environment and strategic vision, our significant IT&S projects that will be included in the first year of the proposed multi-

1 year rate plan (“MRP”), and the IT&S projects that will be included in the second year  
2 of the MRP:

3 • **IT&S Environment and Strategy:** Technology systems have become  
4 increasingly critical to utility operations. Growing security, customer service, and  
5 operational demands require ongoing technological innovation that must be  
6 implemented both proactively and strategically. In this context, NW Natural’s  
7 aging foundational software systems need significant upgrades and replacements.

8 ***Year One of MRP***

9 • **Data Center Migration and Modernization Project:** The Company has  
10 relocated, reconfigured, and upgraded its data centers to ensure stable, secure, and  
11 cost-effective resilience in case of disaster events. The Data Center Migration and  
12 Modernization Project was completed and placed into service in May 2020.

13 • **Customer Order Management (“COM”) Project:** This project replaced an  
14 outdated, homegrown software system encompassing order management and  
15 NW Natural’s interactions and relationships with current and prospective  
16 customers and trade allies (known as a customer relationship management system,  
17 or “CRMS”). The previous, outdated system has been replaced by a streamlined,  
18 automated process for handling interactions with customers, trading partners (such  
19 as equipment suppliers), municipalities, and prospective customers. The COM  
20 project was completed and placed into service in June 2020.

21 • **Digital Portal Project:** This project replaced NW Natural’s out-of-date website in  
22 order to accommodate the Company’s growing mobile traffic, enable interactions

1 with the Company's Horizon projects, and improve security. The Digital Portal  
2 project was completed and placed into service in October 2020.

- 3 • **Microsoft 365 E5 Software Subscription:** NW Natural has purchased the  
4 Microsoft 365 E5 software subscription (billed monthly on a per-user basis), which  
5 provides access to the latest software versions (e.g., Office 365), as well as robust  
6 cybersecurity, communication, and collaboration software (e.g., Defender, Teams,  
7 SharePoint, Online, and OneDrive).
- 8 • **Composition Hardware & Software Phase 1:** NW Natural has replaced the  
9 primary interface that generates customer bills, notices and letters, which was  
10 previously included in the code of the Company's Customer Information System  
11 ("CIS"). This project was completed in October 2020.
- 12 • **Skype for Business Phase 2:** The Company has transitioned to using Skype for  
13 Business as its primary communications system – moving away from its legacy  
14 Avaya phone system. The move to Skype for Business began in 2019 and has  
15 improved how we communicate both internally and with customers. Skype for  
16 Business was also essential in enabling NW Natural to continue to provide excellent  
17 customer service during a challenging 2020. Phase 2 was placed in service in  
18 September 2020.
- 19 • **Contact Center and Interactive Voice Response ("IVR") Solutions:** This  
20 project modernized the Company's customer contact center and customer service  
21 functions, leveraging new service platforms like text messaging, web chat and  
22 natural speech recognition to enable more efficient customer service. This project  
23 was placed in service in October 2020.

- 1       • **Security Alerting and Monitoring:** NW Natural has implemented this tool to  
2       assist in monitoring cyber-attacks and cyber threats. This tool collects security logs  
3       to monitor security-related events and identify potential security threats. This  
4       project was placed in service in December 2020.
- 5       • **SAP Learning Management System (“LMS”):** The SAP Learning Management  
6       System provides a single solution for employee training, including the tracking and  
7       management of that training. This project is expected to be completed in February  
8       2021.
- 9       • **SAP SuccessFactors Employee Central (“EC”) and Onboarding:** This project  
10      replaces NW Natural’s existing human capital management system and onboarding  
11      process. The Company’s current system has limited functionality and requires  
12      manual data entry. This project is expected to be completed in June 2021.
- 13     • **Planview Implementation:** This project implements software that is needed to  
14      improve the Company’s existing project management and technology management  
15      processes. The Planview tools are expected to simplify and streamline project and  
16      technology management by creating a single source of information with enterprise-  
17      wide visibility. This project is expected to be completed in September 2021.
- 18     • **BI Strategy/Power BI Deployment:** NW Natural has incorporated Microsoft’s  
19      Power BI stack, a dedicated package of analytics tools that improves the  
20      Company’s enterprise data analytics capabilities. The Company continues to  
21      implement applications of these tools to develop and publish analytics and reports  
22      related to specific individual business needs. This project is being placed in service  
23      on a rolling monthly basis through August 2021.

1           ***Year Two of MRP***

- 2           • **Horizon Program:** This seven-year strategic initiative will provide a  
3           comprehensive IT&S update to increase operational efficiency and improve  
4           technological resilience and security. This testimony describes Horizon’s critical  
5           components, development and implementation strategy, and our progress to-date.  
6           This discussion also describes related and prerequisite projects that are an essential  
7           part of Horizon’s development.

8           **Q. How are the Company’s IT&S projects allocated to Washington customers?**

- 9           A. The Company’s IT&S projects are allocated to Washington and Oregon customers  
10           using the allocation factor of total customers. The Washington allocation factor for  
11           total customers in this case is 11.53 percent. The Direct Testimony of Kyle Walker  
12           (Exh. KTW-1T) addresses the topic of allocation factors and their associated  
13           methodology.

14                           **II. OVERVIEW OF THE IT&S ENVIRONMENT**

15           **Q. Please briefly describe the current IT&S environment.**

- 16           A. The current IT&S environment is changing rapidly, while also becoming increasingly  
17           vital to utility operations. From a business perspective, NW Natural relies on the  
18           availability of comprehensive, accurate, and timely information and analytics.  
19           Similarly, customers have come to expect ready, reliable access to IT&S services such  
20           as customer support and bill payment options, with interfaces available and responsive  
21           at all times. Yet while NW Natural’s business and its customers become increasingly  
22           reliant on the opportunities offered by increasing digitization, security concerns and  
23           their associated costs grow commensurately.

1           Today, these complex technology assets are essential to NW Natural's ability  
2 to provide safe, reliable, and adequate service to our customers. As a result, a  
3 comprehensive strategic vision is essential to plan for, implement, and evaluate  
4 technological investments, thus ensuring that the Company's business operations,  
5 customer engagement, and reliable provision of service are all adequately supported at  
6 reasonable cost to customers.

7 **Q. Please explain how NW Natural is currently situated in this IT&S environment.**

8 A. NW Natural has sought to balance the growing need for technological innovation with  
9 the goal of serving customers in a cost-effective manner, both by preserving and  
10 extending the usefulness of existing IT&S platforms and programs and by maintaining  
11 a lean staffing profile. However, NW Natural's current IT&S architecture is  
12 experiencing substantial ongoing maintenance problems, requiring the Company's  
13 limited number of IT&S employees to tend to a growing volume of urgent upgrades.  
14 The Company's outdated application portfolio has become both disruptive and  
15 inefficient, and is thus overdue for a strategic and comprehensive update. Additionally,  
16 as I will describe in my testimony, some of our applications are not only outdated, but  
17 are also reaching end-of-life—meaning that the application providers no longer provide  
18 updates or support for the applications.

19 **Q. Does NW Natural have an over-arching strategic goal in this increasingly**  
20 **complicated IT&S environment?**

21 A. Yes. A central goal guiding NW Natural's IT&S strategy is reducing complexity for  
22 the benefit of our customers. Currently, the Company's IT&S systems are outdated,  
23 which leads to increasingly complex solutions when issues arise, burdening our staff



1 and leading to increased risk of system outage. To help streamline NW Natural's IT&S  
2 systems, we are consolidating the number of applications in our portfolio, using off-  
3 the-shelf rather than custom-developed software, and relying on a smaller number of  
4 reliable software providers to support the IT&S infrastructure as we move forward.

5 **III. YEAR ONE PROJECTS**

6 **A. Data Center Migration and Modernization Project**

7 **Q. Please describe NW Natural's data center migration and modernization project.**

8 A. The data center migration and modernization project involved relocating,  
9 reconfiguring, and upgrading the Company's data center system, which was completed  
10 in May 2020. A data center is a dedicated space that houses an organization's IT  
11 operations and equipment, and is also where the organization stores, manages, and  
12 disseminates data. In the past, NW Natural's primary data center was located in the  
13 Company's former headquarters basement, which was seismically vulnerable and  
14 susceptible to flooding, with a second back-up data recovery center located in  
15 Sherwood, Oregon. Both sites are within the impact zone of a large Cascadia seismic  
16 event. In large part due to these seismic concerns, NW Natural had been considering  
17 relocating its data centers for years. Now that NW Natural has relocated its  
18 headquarters, migrating the data centers became unavoidable. We vacated our prior  
19 headquarters in the early part of 2020. NW Natural reset its data center operations as  
20 follows:

- 21 • **First**, the Company established three data center locations: (1) a new data center at  
22 a co-located, leased facility in Bend, Oregon; (2) NW Natural's existing Sherwood,

1 Oregon, data center; and (3) a small, supplemental data room at the Company's  
2 new operations center at 250 Taylor.

- 3 • **Second**, NW Natural reconfigured its data center system to transition from the prior  
4 two-location system to a three-location approach, allowing rapid recovery  
5 following disaster events. This approach has allowed NW Natural to maintain only  
6 a small data room at 250 Taylor to provide on-site needs, while establishing full  
7 redundancy of critical systems at the Sherwood and Bend locations.
- 8 • **Third**, the Company's relocated and redesigned data centers are enhanced to  
9 implement modern cybersecurity measures, enabling greater protection of customer  
10 data and critical systems.

11 This relocation, redesign, and upgrading process cost \$11.1 million in capital  
12 investment on a system-wide basis—or \$1.3 million on a Washington-allocated basis—  
13 and was placed in service in May 2020.

14 **Q. Why did NW Natural adopt a three-location approach?**

15 **A.** NW Natural adopted a three-location approach for two basic reasons:

- 16 • **First**, by maintaining a small on-site data room at the new 250 Taylor operations  
17 center, NW Natural is able to provide adequate support for those applications  
18 requiring a local presence or particularly high-speed responses, such as network,  
19 security, and phone systems. However, reserving a more substantial space in 250  
20 Taylor for a data center would have been an uneconomical use of space. Thus,  
21 NW Natural concluded that the most economical and efficient approach was to  
22 minimize on-site data room functions and to maintain the bulk of data center  
23 services off-site. Having established a much smaller data room at 250 Taylor, two

1 independent data centers were needed to ensure comprehensive resilience in case  
2 of a disaster event.

3 • **Second**, NW Natural chose to use the Bend and Sherwood sites to provide the bulk  
4 of data center services because these are two relatively diverse geographic  
5 locations—thus ensuring that no single seismic event or other emergency event  
6 could reasonably undermine the Company’s critical IT&S infrastructure.

7 **Q. What alternatives did NW Natural consider in developing the data center**  
8 **migration and modernization project?**

9 A. NW Natural considered two alternatives to the data center migration and modernization  
10 project described above: (1) building a new data center in an existing resource center  
11 in The Dalles, Oregon; and (2) migrating one of the three data centers to a cloud-based  
12 solution.

13 **Q. Why did NW Natural choose not to pursue these alternatives?**

14 A. **First**, building a new data center in The Dalles location would have been more  
15 expensive when accounting for ongoing O&M costs, such as power, cooling, physical  
16 security, and maintenance. There was also a concern about the build-time to construct  
17 a data center at this location before needing to vacate the Company’s prior  
18 headquarters.

19 **Second**, moving the data center as a whole to a cloud computing solution was  
20 similarly rejected at this time due to greater costs, a lack of testing capabilities  
21 necessary to ensure system resilience, and substantial incompatibilities with existing  
22 critical systems—meaning that the Company would still have required full physical  
23 support systems in addition to a cloud-based service.

1           As a result of this analysis, NW Natural decided to modernize the existing  
2 Sherwood facility and to establish a new data center at a purpose-built, co-located  
3 leased facility in Bend. This option was the most attractive due to its reliability,  
4 geographic diversity, and cost-effectiveness. Moreover, by entering into a five-year  
5 lease at the Bend location, NW Natural has retained the flexibility to consider cloud-  
6 based or other solutions in the future, if costs and technologies change.

7 **Q. Why was it necessary to modernize the Sherwood data center?**

8 A. The Sherwood data center was not created to serve as a primary data center because the  
9 Company had a full on-site data center at the prior headquarters. As a result, the  
10 Sherwood location required additional power, cooling, and other equipment to allow  
11 that facility to serve as a reliable and efficient primary resource, and also to ensure that  
12 the Company could operate directly out of that location in an emergency.

13 **Q. Please explain the costs involved in the data center migration and modernization**  
14 **project.**

15 A. The two most significant costs associated with the data center migration and  
16 modernization project are network and labor. Specific cost categories, excluding  
17 construction overhead, are shown below in Table 1:

18 **Table 1**

<b>Category</b>	<b>Total System Cost</b>	<b>Washington-Allocated Cost</b>
Cyber Security	\$184 thousand	\$21.2 thousand
Load Balancing	\$69 thousand	\$8 thousand
Network	\$3.214 million	\$370.6 thousand
Server	\$716 thousand	\$82.6 thousand
Storage	\$611 thousand	\$70.4 thousand
Software	\$32 thousand	\$3.7 thousand
Labor	\$5.225 million	\$602.4 thousand

1 **Q. Please describe the network costs.**

2 A. The majority of network costs includes purchasing equipment such as routers, firewalls,  
3 security monitoring devices, cabling, and the software technologies that run the  
4 integrated data center network. This equipment simplifies the data center's automated  
5 systems and allows applications to be more easily mapped onto the data center's  
6 network.

7 **Q. Please describe the labor costs.**

8 A. The labor costs associated with migrating and upgrading the data centers entail  
9 significantly more than simply moving physical equipment. All of the applications and  
10 IT infrastructure previously mapped onto the then-existing data centers had to be  
11 assessed, inventoried, installed on the new systems, configured to work effectively, and  
12 then tested and reconfigured as necessary. This process involved the time and attention  
13 of network engineers, infrastructure engineers, software engineers, security engineers,  
14 technical analysts, and project managers.

15 **Q. Were labor costs higher than anticipated?**

16 A. Yes – this was due in large part to the age and complexity of the applications being  
17 transferred, the short window of time available to complete the work, and the need to  
18 proceed carefully so as to minimize disruptions and downtime for critical applications  
19 being supported by the data centers. NW Natural's IT&S infrastructure has grown  
20 organically in the past decades, with many applications dependent on each other to  
21 operate smoothly. Meanwhile, data center technologies and application requirements  
22 have made significant leaps forward. As a result, the modernization process required

1 significantly more work than anticipated to ensure a relatively seamless and long-  
2 lasting transition with maximum benefits for NW Natural's customers.

3 **B. COM Project**

4 **Q. Please describe NW Natural's COM project.**

5 A. The COM project replaced NW Natural's homegrown CRMS with a new COM system.  
6 CRMS served new and prospective customers by answering customer requests for  
7 service and information, while also ensuring that all engineering and customer service  
8 needs—as well as federal, state, and tariff requirements—were fully met when  
9 providing new customer service. An effective CRMS must offer full-service  
10 functionality to serve customers, including managing and fulfilling inquiries, tracking  
11 orders, and providing real-time information on gas availability. The COM project was  
12 completed in June 2020, with a system-wide capital cost of \$14.1 million, or \$1.6  
13 million on a Washington-allocated basis. The cost of the project is in line with industry-  
14 standard costs for such a multi-faceted and critical software upgrade, which typically  
15 takes 2-4 years and ranges in cost from \$6 million to \$15 million.

16 **Q. Please describe the issues that the Company faced with its previous CRMS.**

17 A. The CRMS was fully customized and had been in use since 2003. With more than 17  
18 years in service, the CRMS had an extraordinarily long life span for this type of  
19 software. As business, customer, and regulatory needs have evolved over these years,  
20 the Company had been able to delay the need for major replacements through  
21 incremental modifications to the CRMS, resulting in layers of add-ons and updates.  
22 While these interim measures allowed the CRMS to withstand a significant amount of  
23 change, the accumulating modifications had ultimately resulted in an unwieldy and

1           unsustainable software architecture that was no longer supportable by vendors or  
2           available employee skillsets. Moreover, the CRMS interacted with other NW Natural  
3           software systems, and was increasingly struggling to interface with other modern  
4           software applications.

5                       As a result of this complexity and the lack of support for the existing CRMS  
6           technology, it became increasingly difficult to make necessary process changes,  
7           resulting in a growing backlog of required development needed to maintain the system.

8   **Q.   What alternatives did the Company consider when evaluating how to address the**  
9   **problems with the previous CRMS?**

10  A.   The Company considered three alternatives: (1) keep the existing CRMS, (2) create a  
11   new custom system developed in-house, and (3) use (and, if necessary, adapt) an off-  
12   the-shelf replacement system. The Company concluded that the first option was not  
13   viable because the existing CRMS was no longer supported or supportable, based on  
14   the following factors:

15           •   NW Natural’s homegrown system, as a platform built incrementally over 17 years  
16           with complex interconnections, suffered from frequent breakages when it was  
17           updated. As the CRMS is necessary to onboard customers and respond to customer  
18           orders, it is a mission critical system that must be workable 24/7.

19           •   The CRMS was inadequate to meet customer expectations for speed and response  
20           times. The system had become increasingly slow, with basic screen changes taking  
21           up to a minute to process. Customers have increasingly come to expect fast-paced  
22           response times, akin to the service provided by large-scale service providers, such  
23           as Amazon.com or eBay.com.

- 1           • The incremental creation of the system entailed a variety of manual input processes  
2           (such as independently-managed excel spreadsheets) and extensive, multi-year  
3           training processes for employees. As NW Natural, consistent with the rest of the  
4           industry, has experienced greater turnover rates in IT services, the ability to  
5           maintain continuity for a large, internally-developed and maintained system has  
6           decreased.
- 7           • Unfortunately, CRMS's complexity did not allow for incremental retrofits without  
8           either jeopardizing the system's integrity or requiring a complete system overhaul  
9           equivalent to developing and maintaining a new custom software package—  
10          replicating the Company's continuity and staffing concerns.

11          In light of these factors, the Company concluded that retrofitting the existing software  
12          was not a feasible option. As a result, the Company considered whether to create a new  
13          custom software solution or use an off-the-shelf software solution. Of these remaining  
14          two options, custom-built software is consistently more expensive and, as demonstrated  
15          by the Company's experience developing and maintaining CRMS, requires extensive  
16          ongoing maintenance. In recent years vendors have specialized in developing  
17          comprehensive products that, with some modification, can meet the demands of NW  
18          Natural's range of processes—with external vendors responsible for the streamlined  
19          ongoing maintenance of the software product. By outsourcing these expensive and  
20          highly labor-intensive maintenance tasks, while reducing the up-front development  
21          cost, adapting an off-the-shelf software solution was deemed the best option in today's  
22          market.



1 **Q. What are the benefits of the new COM system?**

2 A. There are two major categories of benefits for the new COM system: substantially  
3 increased functionality and long-term cost savings.

4 **Q. Please describe the functional benefits of the new COM system.**

5 A. The new COM system has upgraded the largely manual CRMS into an automated,  
6 streamlined customer-service tool. By using an intuitive design that incorporates the  
7 range of engineering, legal, and regulatory requirements, NW Natural can ensure that  
8 it is accurately and promptly responding to informational and service requests.

9 For instance, a minor difference in the type of equipment that a customer seeks  
10 to install (e.g., type of water heater) can lead to major differences in the facilities put  
11 in place by NW Natural (e.g., pipe size). Such details previously needed to be  
12 memorized by staff or pulled from lengthy informational binders—a cumbersome and  
13 time-consuming process. Now these details are incorporated into the COM system,  
14 allowing customer service representatives to answer questions and requests more  
15 promptly. As a result, the Company estimates that response times may be reduced by  
16 one-third, and intends to track these anticipated efficiency gains going forward.  
17 Moreover, because the new COM system is highly configurable, it can be adjusted to  
18 include new requirements and questions without requiring developer resources.

19 In sum, the new system:

- 20 • responds to changing internal and external requirements;
- 21 • allows coordinated outreach to all customers impacted by common issues, such as
- 22 weather events;

- 1 • monitors customer orders to ensure that the Company and customers have adhered
- 2 to all relevant deadlines;
- 3 • provides broader access to information across multiple areas of the Company;
- 4 • supports digital data storage, thus reducing the need for paper and physical storage;
- 5 • produces on-demand project reporting and status data; and,
- 6 • reduces reliance on developers as new accounts can be tracked individually, also
- 7 resulting in greater transparency for internal data.

8 Collectively, these improvements allow NW Natural employees to respond more  
9 quickly and efficiently to customer questions and requests, resulting in a better  
10 experience for existing and prospective customers.

11 **Q. Please describe the long-term cost savings of the new COM system.**

12 A. The efficiencies expected from the COM system averted the need to hire up to four  
13 additional FTEs on the Customer Acquisition team that would have been required due  
14 to order volume. Additionally, the new COM system will ultimately provide cost  
15 savings to customers by reducing reliance on developer resources needed for our prior  
16 CRMS system. The new system also helps prevent errors that might delay orders or  
17 otherwise impact costs.

18 **C. Digital Portal Project**

19 **Q. Please describe NW Natural's Digital Portal project.**

20 A. NW Natural's Digital Portal project replaced NW Natural's out-of-date website in  
21 order to improve data security and accommodate the Company's growing mobile  
22 traffic. The new Digital Portal will also more seamlessly integrate with impending CIS  
23 changes from Horizon 2. In order to achieve these goals, the project replaced the

1 existing website’s “content management system” with a comprehensive new digital  
2 framework—including a modern “experience management platform,” online payment  
3 processing provider and platform, and hosting infrastructure.<sup>1</sup> The Digital Portal is  
4 based on a new development approach that provides a tailored online experience  
5 depending on the type of user thus ensuring that customers can more quickly and easily  
6 find the information and resources they need regardless of the screen size of the device  
7 used to access the portal. Information is also provided in a range of formats and  
8 languages, increasing accessibility for all customers. The project cost was  
9 \$12.3 million in capital investment on a system-wide basis—\$1.4 million on a  
10 Washington-allocated basis—and was placed in service in October 2020.

11 **Q. Why was it necessary to replace NW Natural’s existing website?**

12 A. NW Natural’s prior website was developed in 2010 and launched in 2012, and was no  
13 longer capable of meeting either the Company’s or its customers’ expectations for  
14 modern digital security and excellent customer service. Given that, in my experience,  
15 the typical life span of a website is approximately five years, NW Natural’s prior  
16 platform was understandably struggling to meet today’s customer demands.<sup>2</sup> In  
17 particular, the past decade has transformed both the cybersecurity landscape as well as

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<sup>1</sup> A “content management system” is a simplified website tool that allows for only edits to a website’s content, not substantial or structural changes. In contrast, an “experience management platform” provides many different additional functions such as far more robust website analytics, flexible marketing automation, and the ability to create different website experiences based on the type of user—among other features.

<sup>2</sup> Orbit Media Studios, “What is the average website lifespan? 10 Factors In Website Life Expectancy” (2017) available at: <https://www.orbitmedia.com/blog/website-lifespan-and-you/>; Thomas Digital, “What is the average lifespan of a website design?”, available at: <https://thomasdigital.com/what-is-the-average-lifespan-of-a-website-design/>; Creative Media Services, Inc., “What is the lifespan of a typical website?” (2016), available at: <https://www.cmsdecatur.com/2016/06/23/websites-lifespan-typical-website/>.

1 customers' reliance on mobile access technologies—a functionality not adequately  
2 supported by the Company's previous digital platform.

3 **Q. What are the security reasons for replacing the existing website?**

4 A. The prior website relied on a number of outdated security features that had become  
5 increasingly vulnerable, while cybersecurity threats are becoming more sophisticated.  
6 These features involve layers of protections to shield both customers' sensitive personal  
7 information as well as NW Natural's internal network from users accessing the website.  
8 If the Company had continued to rely on legacy code, software, and hardware that  
9 follow outdated cybersecurity measures, customer and Company data could have been  
10 compromised. A simplified visual depiction of the security features is shown in Figure

11 1.

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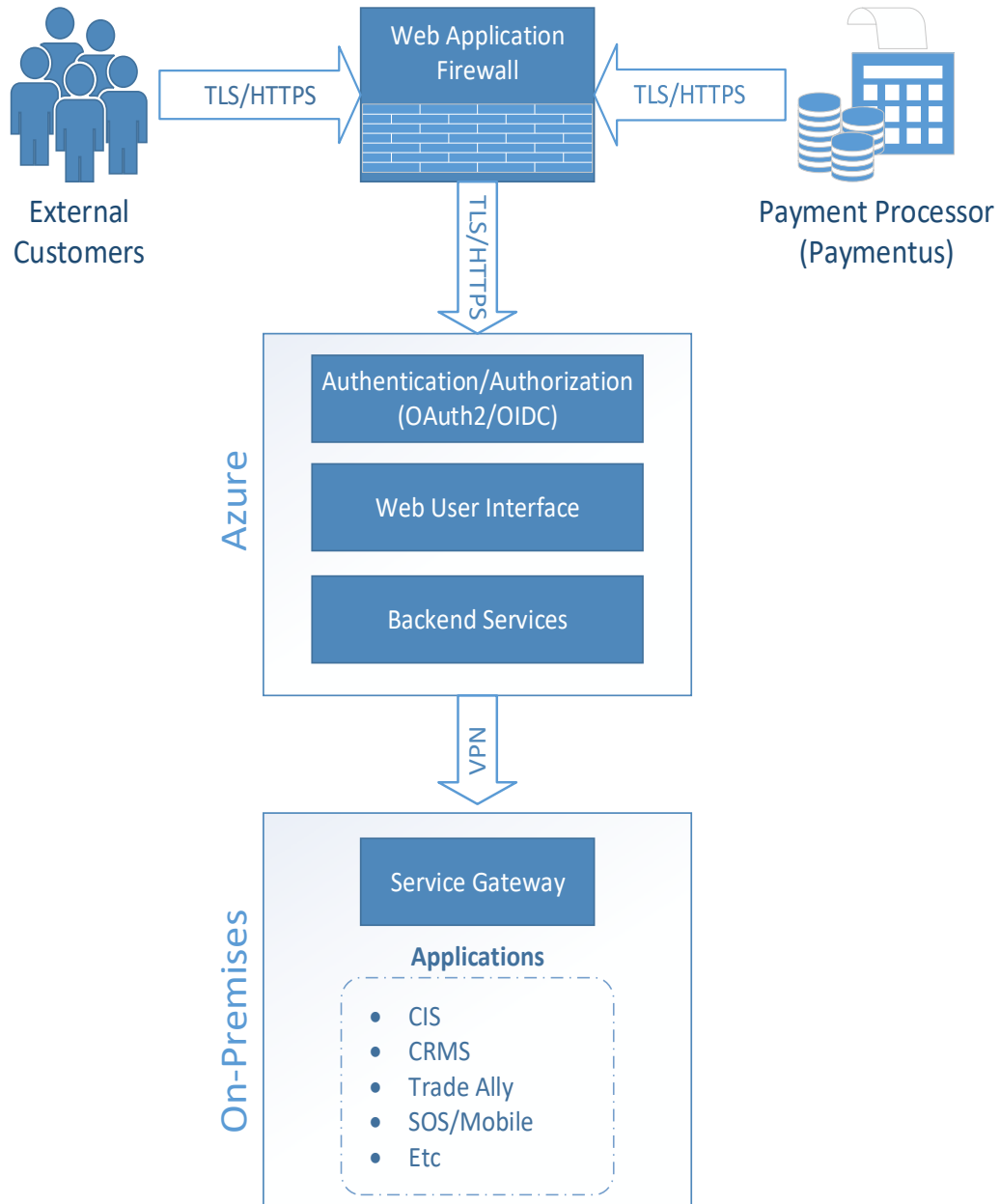
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**Figure 1**



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As shown in Figure 1, the Transport Layer Security (“TLS”) forms a crucial protective layer between users of NW Natural’s Digital Portal and the rest of NW Natural’s internal network, ensuring that individuals accessing the website cannot interfere with NW Natural’s operating systems. However, NW Natural’s previous

1 website used version TLS 1.0 that was released in 1999, and is now significantly out-  
2 of-date. Indeed, four of the country’s largest web browser providers intended to disable  
3 use of this security system by March 2020<sup>3</sup>—though this timeline has been extended  
4 due to circumstances surrounding the Covid-19 pandemic.<sup>4</sup> NW Natural’s new Digital  
5 Portal incorporates TLS 1.2 which, according to a 2019 industry survey, has already  
6 been adopted by approximately 94 percent of websites.<sup>5</sup>

7 Similarly, the previous website’s hosting infrastructure—the software system  
8 that served as the platform for the website itself—was an on-premises solution that was  
9 significantly outpaced by the security and resiliency features of modern cloud-based  
10 hosting platforms. The new Digital Portal’s hosting infrastructure, Azure, is a cloud-  
11 based Microsoft program that not only leverages all of Microsoft’s digital security  
12 protocols, but also allows for full disaster recovery because it is not tied to a particular  
13 data server.

14 **Q. What are some of the security benefits of the new Digital Portal project?**

15 A. In addition to the upgraded TLS shield and hosting infrastructure described above, the  
16 new Digital Portal incorporates many modern security features including an advanced  
17 user authentication system, tighter controls on who can reach NW Natural’s system  
18 from the Digital Portal, and more secure payment processing system practices—all of

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<sup>3</sup> Ars Technica, “Apple, Google, Microsoft, and Mozilla come together to end TLS 1.0” (Oct. 16, 2018), available at <https://arstechnica.com/gadgets/2018/10/browser-vendors-unite-to-end-support-for-20-year-old-tls-1-0/>.

<sup>4</sup> Gregg Keizer, ComputerWorld, “Browser makers cite coronavirus, restore support for obsolete TLS 1.0 and 1.1 encryption” (Apr. 3, 2020).

<sup>5</sup> Qualys SSL Labs, “SSL Pulse,” (accessed Nov. 19, 2019), available at: <https://www.ssllabs.com/ssl-pulse/>

1 which significantly reduce system risk and increase the system’s resistance to cyber-  
2 attacks.

3 **Q. Please describe the benefits of the new user authentication system.**

4 A. The new user authentication system has upgraded the old system to a modern  
5 technology system because the old technology was increasingly vulnerable. For  
6 instance, the new system incorporates two-factor authentication and provides a  
7 stronger, customizable filter that can block users making suspicious requests or from  
8 certain locations—shrinking the pool of bad actors that might seek to work around the  
9 Digital Portal’s other protective layers.

10 **Q. Are there other security features that were upgraded in the new Digital Portal?**

11 A. Yes. The Digital Portal also incorporated:

- 12 • an additional protective layer around subsidiary components of the project—known  
13 as “microservices”—that are created by third-parties;
- 14 • a secure communication tie between cloud and on-premise services through a  
15 Virtual Private Network (“VPN”) that provides a secure tunnel to NW Natural’s  
16 server for select communications; and,
- 17 • a new vault provided as part of Microsoft’s hosting infrastructure that tightly  
18 controls access to the various tokens, passwords, certificates, and other types of  
19 keys necessary to access the Digital Portal and NW Natural’s system.

20 **Q. What are the security benefits associated with the Digital Portal’s new payment  
21 processing provider?**

22 A. As detailed later in my testimony, the Digital Portal integrates with a new payment  
23 processing provider (Paymentus) for transacting credit, debit, and ACH payments

1 online. By moving to the new partner, NW Natural is able to have all customer  
2 Payment Card Information related to utility services payments handled by a company  
3 focused on processing payments and with robust protections for the associated data.  
4 Paymentus is subject to significant scrutiny as they are in the top tier of credit card  
5 processors. For instance, and in contrast to NW Natural's previous payment provider,  
6 a customer needing to communicate sensitive payment information over the phone with  
7 a customer service representative is transitioned seamlessly into an IVR tool through  
8 Paymentus before being returned to a customer service representative, thereby  
9 shielding the sensitive information more securely.

10 **Q. In addition to cybersecurity benefits, you mentioned mobile functionality as a**  
11 **second key benefit of the new Digital Portal. Why was it important to establish**  
12 **full mobile functionality?**

13 A. Full mobile access is critically important as NW Natural's customers increasingly use  
14 their phones or tablets to access essential customer resources. Today, more than  
15 42 percent of NW Natural's website traffic and payment transactions are from mobile  
16 devices—up from 38 percent in 2018. Given that approximately two-thirds of today's  
17 households use mobile devices to access the internet, this number will likely continue  
18 to increase.<sup>6</sup>

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<sup>6</sup> U.S. Census Bureau, "More Than Two-Thirds Access Internet on Mobile Devices" (Aug. 8, 2018), available at <https://www.census.gov/library/stories/2018/08/internet-access.html> (describing research showing that mobile broadband is accessed in 68 percent of households).



1 **Q. Were NW Natural’s customers satisfied with the previous website’s mobile**  
2 **experience?**

3 A. No. According to the Company’s most recent third-party survey, 50 percent of  
4 customers were not satisfied with the mobile experience offered by the prior website.

5 **Q. What were the impacts of poor mobile functionality?**

6 A. With more than 22 million annual page views and over 287 thousand registered online  
7 accounts, limited mobile access and poor self-service feature performance not only  
8 degraded customer satisfaction but likely resulted in substantially greater customer  
9 service call volume.

10 By way of background, there are more than two dozen customer-self-service  
11 features offered on the website today, such as customer usage history, payment plan  
12 enrollment options, and appointment scheduling. These self-service features are  
13 designed to enable quick, easy, and on-demand resolution to common customer needs  
14 without speaking with a NW Natural representative. Similarly, the website provides  
15 vital information about gas safety and ways to save energy and money. Yet neither  
16 these self-service options nor the customer information pages were able to be optimized  
17 for mobile devices on the previous web platform.

18 Tellingly, close to 70 percent of users that visit the “Customer Service” section  
19 of the Company’s website use a mobile device to do so. This concentration of mobile  
20 users seeking direct customer service support suggests that a disproportionate share of  
21 mobile customers was not being effectively served by the previous website. This  
22 service gap created a burden on customer support services that could have been readily

1 eased by improving customers' ability to resolve issues and find information quickly  
2 and easily through frictionless mobile access.

3 **Q. Were there any other reasons to upgrade the existing website?**

4 A. Yes. The previous website's outdated technology also posed increasing reliability  
5 concerns as ongoing maintenance and performance responsibilities were placed on the  
6 Company's overburdened internal development team. Critically, the new Digital Portal  
7 allows NW Natural's non-developer staff to make changes to the website as necessary  
8 and avoids the need for time-intensive development and implementation processes that  
9 are currently required for most website revisions.

10 **Q. How does the new Digital Portal provide an improved customer experience?**

11 A. The new Digital Portal provides an improved customer experience by using a  
12 responsive design and component architecture. This new framework provides easy,  
13 user-friendly access to content pages, service, and functionality features on all kinds of  
14 digital devices—including smartphones and tablets. Using the Digital Portal's  
15 powerful new experience management platform and online payment processing  
16 partner, customers are able to find information and conduct business online with NW  
17 Natural faster, easier, and without technology barriers.

18 For instance, the new system includes more than 58 individual components  
19 delivering over 100 content pages and over 35 functional applications that have been  
20 completely reengineered and designed to facilitate self-service participation in all of  
21 the Company's customer convenience programs, account management features, and  
22 billing and payment options. Ready access to these functions and programs on any  
23 device saves customers time, money, and frustration.

1 **Q. How will the Digital Portal interact with impending infrastructure upgrades?**

2 A. Both the Horizon 2 CIS replacement and the COM project will provide web features,  
3 such as user personalization, that were not currently supported by the previous website  
4 infrastructure and are essential to providing a user-friendly customer experience. The  
5 structure of the new Digital Portal will allow it to integrate with the new CIS with  
6 minimal effort, and will be far more efficient than attempting to interface a new CIS  
7 with the existing website.<sup>7</sup> Thus, the Company completed the Digital Portal before the  
8 new CIS replacement is implemented (Horizon 2). This sequential approach also  
9 ensures that development staff currently dedicated to the Digital Portal will be available  
10 to provide necessary support for the impending Horizon projects.

11 **Q. What is the Digital Portal's new experience management platform provider?**

12 A. The Digital Portal's new experience management platform provider is Sitecore, which  
13 offers compatibility with multiple devices and browsers, sufficient flexibility to enable  
14 the full suite of customer-service features, and fully-integrated editing tools to reduce  
15 developer needs—all while accommodating the complexity of NW Natural's customer  
16 self-service features and back-end integration needs.

17 **Q. Did NW Natural consider any other platform providers?**

18 A. Yes. At the time that NW Natural was selecting a platform provider, the Company  
19 identified Sitecore and Adobe as the two industry leaders based on consultation with  
20 peer utilities. While Adobe also offered sufficient features to meet the project's

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<sup>7</sup> The Digital Portal, unlike the existing website, has been developed using an Application Program Interface between the front-end and back-end of the project architecture. This layer makes integration with the new back-end applications far easier.

1 requirements, the underlying programming language used by Adobe (Java) is not  
2 generally used by NW Natural—unlike Sitecore, which uses .NET.

3 **Q. Did NW Natural hire vendors to help develop and implement the Digital Portal?**

4 A. Yes. NW Natural hired vendors to aid in (1) project development; (2) payment  
5 processing; and (3) project testing.

6 **Q. Who developed the Digital Portal and how was this vendor selected?**

7 A. NW Natural selected Connective DX as the Sitecore project developer through a  
8 competitive bidding process. Following a request for proposals (“RFP”), NW Natural  
9 evaluated six developer bids and assessed each proposal for industry experience,  
10 development methodology, and cost competitiveness. Connective DX, a Portland-  
11 based company, achieved one of the top scores in this assessment process. Moreover,  
12 of the highest-scoring bids, Connective DX was the only option that allowed for  
13 effective transitional training for NW Natural development staff, which is necessary to  
14 enable long-term management and maintenance on the new Sitecore platform.

15 **Q. Who is the new payment processing outside consultant and how was this vendor  
16 selected?**

17 A. NW Natural selected Paymentus as the Company’s new payment processing provider  
18 through a similar competitive bidding and RFP process. Four bids were evaluated  
19 based on completeness of the service offering, security standards, utility experience,  
20 development methodology, payment method flexibility, integrated IVR technology,  
21 and cost competitiveness. Paymentus, a Charlotte, North Carolina company, offered  
22 the most complete overall solution.

1 **Q. Who provided back-end development and testing support for the Digital Portal**  
2 **project and how was this vendor selected?**

3 A. NW Natural selected Online Business Systems to supplement the Company's internal  
4 technical development and testing staff. A project of this size depends on substantial  
5 technical support and testing resources that do not need to be sustained after the project  
6 is in service; NW Natural simply did not have a sufficient number of full-time staff to  
7 support this effort. Online Business Systems, a Winnipeg, Canada company with a  
8 Portland office, has provided consistent, high-quality performance on more than a  
9 decade of previous NW Natural projects. Before selecting Online Business Systems,  
10 NW Natural investigated three other development and testing support providers  
11 through a Request for Information process. However, none of these other providers  
12 offered the same degree of available staff experienced working in the necessary  
13 technologies. As a result, and given NW Natural's previous positive experiences,  
14 Online Business Systems was selected.

15 **Q. What alternatives to the Digital Portal did NW Natural consider?**

16 A. NW Natural considered two alternatives to the Digital Portal, including (1) removing  
17 the digital engagement tool and pursuing a new content management system only; and  
18 (2) delaying the project until the CIS replacement (Horizon 2) is under development.

19 NW Natural concluded that removing the digital engagement tool was not  
20 appropriate because the tool provides the means of engaging with customers and  
21 providing customer support services. Ultimately, these digital engagement services are  
22 provided by Sitecore and Paymentus, such that a third-party digital engagement  
23 provider is not necessary.

1 NW Natural also rejected the option of delaying the website replacement so that  
2 it would be completed during the Horizon 2 CIS replacement project. This option was  
3 not recommended given the strain on resources required to complete both projects  
4 simultaneously. Moreover, the condition of the previous website, described above,  
5 required prompt attention to avoid further customer frustration and dissatisfaction.

6 **Q. Would it have been possible to modify the previous website to enable mobile**  
7 **functionality?**

8 A. No. Unfortunately, the prior website structure used a template-style architecture that  
9 could not be effectively scaled for different device sizes. Additionally, upgrading the  
10 security standards for the previous website required new software, hardware, and  
11 payment processing upgrades, all now provided with the Digital Portal project.

12 **Q. Did the cost of the Digital Portal project increase since the Company first**  
13 **performed an alternatives analysis?**

14 A. Yes. The Company's initial alternatives analysis was performed in 2016, and  
15 constituted a very preliminary and high-level estimate focused on the front-end website  
16 component of the Digital Portal. Since that time, and after the planning phase was  
17 completed, it became clear that the initial estimates were far too low to accommodate  
18 the technical complexity involved in integrating infrastructures, while also re-  
19 engineering to allow for the mobile and security improvements that are necessary to  
20 adequately serve customers. Moreover, the connections between the Digital Portal  
21 project and the Company's various back-end applications, such as the CIS, entailed  
22 substantially more time and developer resources than initially anticipated.

1           **D. Microsoft 365 E5**

2           **Q.    What is Microsoft 365 E5 Subscription?**

3           A.    Microsoft M365 E5 is a suite of services first offered in 2010, including both the core  
4           Microsoft Office 365 applications (Word, Excel, Power Point, Outlook, OneNote,  
5           SharePoint, OneDrive, and Microsoft Teams) as well as cloud-based software for  
6           communications (Skype for Business), client access licenses (e.g., Windows 10  
7           Licenses, Windows Server, Exchange Email, SharePoint), and various security  
8           products (e.g., Threat Analytics, Endpoint Protection, and Cloud Security). Microsoft  
9           365 E5 offers three additional critical functions:

- 10           •   **First**, the suite's robust security helps defend users against threats hidden in emails,  
11           attachments, and malicious links while securing our cloud portfolio with two-factor  
12           authentication.
- 13           •   **Second**, the suite's advanced information protection provides the users at the  
14           Company content encryption and minimizes data loss.
- 15           •   **Third**, Microsoft 365 E5's Skype for Business (and Teams) allowed the Company  
16           to avoid making substantial investments in the aged Avaya phone system. To  
17           continue using the replaced Avaya phone system, NW Natural would have needed  
18           to implement an upgrade costing between \$1 million and \$4.8 million on a system-  
19           wide basis (or between \$115 thousand and \$553 thousand on a Washington-  
20           allocated basis).

21           In sum, upgrading the Company to Microsoft 365 E5 avoided substantial investment  
22           necessary to support the replaced Avaya phone system, reduced other routine  
23           maintenance costs associated with upgrading the on-premises version of Microsoft

1 Office, and provided important tools to increase our cybersecurity both on-premises  
2 and in the cloud.

3 **Q. What are the increased O&M costs associated with Microsoft 365 E5 and why are**  
4 **these costs necessary?**

5 A. NW Natural's subscription to Microsoft 365 E5 is \$643,745 annually on a system-wide  
6 basis, or \$74,224 on a Washington-allocated basis. Formerly, NW Natural used  
7 Microsoft Office 2019, which did not involve an annual subscription. However, that  
8 software suite was the last "on-premises" Microsoft Office product and did not provide  
9 the additional cloud security benefits and mobility required to work in a cloud-based  
10 ecosystem. In contrast to the non-subscription approach, the Microsoft 365 E5 suite  
11 includes product features and security updates over the life of the subscription and  
12 access to applications not necessarily included in previously purchased software  
13 packages. Microsoft has shifted its software strategy so that suites like Microsoft 365  
14 E5 are the primary means of obtaining both Microsoft's Office suite as well as the  
15 licenses and tools described above.

16 **Q. Will there be additional costs associated with Microsoft 365 E5?**

17 A. Yes. While not included in the Company's cost-recovery request in this case,  
18 NW Natural will be undertaking a multi-year program to implement the suite of  
19 Microsoft 365 E5 products ("M365 Implementation Program"). Fully implementing  
20 the products will increase security, improve performance, respond to end-of-life, end-  
21 of support technical needs, and enhance our disaster resiliency, thus allowing NW  
22 Natural to better serve our customers.



1           **E. Composition Hardware & Software Phase 1**

2           **Q.     Please describe the Composition Hardware & Software project.**

3           A.     The Composition Hardware & Software project replaces NW Natural's primary  
4           customer interface that generates customer bills, notices, and letters. The current code  
5           used for this function is part of the custom CIS system, and is at risk of disruption  
6           during the CIS upgrade process. By moving forward with the Composition Hardware  
7           & Software project, NW Natural can establish a new and stable front-end customer  
8           interface, substantially reducing the risk of direct customer impact as the CIS is  
9           replaced. NW Natural selected an outsourced print vendor for this project, both to  
10          reduce disaster recovery risk and to provide the most cost-effective solution.

11          **Q.     What was involved in Phase 1 of the Composition Hardware & Software project,  
12          and what will be included in later phases?**

13          A.     Phase 1 of the Composition Hardware & Software project consisted of three major  
14          milestones. The first milestone involved the disassembly of the Company's in-house  
15          printing and fulfillment center. The second milestone updated the Company's  
16          management of special account handling, allowing the outsourced vendor to process  
17          these special handling needs. The third milestone established the programs necessary  
18          to create and distribute bills to customers, while allowing easy customer access to  
19          online bill storage for future reference.

20                   Phase 2 of the project will involve enhanced account management to give  
21          NW Natural more control over the customization of customer communications, such  
22          as adding letters and certain types of refund checks to the available outsourced printing

1 options. This phase will also include development of reporting for all document  
2 generation and fulfillment activities, and will integrate with the new CIS.

3 **Q. Is the Composition Hardware & Software Phase 1 project in service?**

4 A. Yes. The Composition Hardware & Software Phase 1 project was completed in  
5 October 2020, for a total project cost of \$5.0 million on a system-wide basis, or \$576  
6 thousand on a Washington-allocated basis.

7 **F. Skype for Business Phase 2**

8 **Q. Please describe the Skype for Business project.**

9 A. Beginning in March 2020, NW Natural transitioned to using Skype for Business as the  
10 Company's primary communications system—moving away from the legacy phone  
11 system, Avaya. This transition was necessary because the Company's then-existing  
12 service was no longer being supported and servers were beginning to fail, requiring  
13 costly upgrades to maintain core functionality.

14 **Q. What was involved in the two phases of the Skype for Business project?**

15 A. Phase 1 of the Skype for Business project involved standing up the Skype  
16 infrastructure, confirming that the system worked, and conducting a pilot test using  
17 approximately 100 users. After Phase 1 completed in October 2019, Phase 2 continued  
18 with the rollout of Skype for Business to the rest of NW Natural's users, as well as to  
19 conference rooms and any other location requiring telephony services.

20 **Q. Why did the Company choose to transition to Skype for Business rather than  
21 another platform, such as Teams?**

22 A. NW Natural selected Skype for Business instead of Teams for two reasons: first, Teams  
23 had yet to achieve adequate reliability to serve as the Company's primary

1 communications platform. Second, Skype for Business (unlike Teams) has both on-  
2 premises and cloud-based options, and the Company determined that transitioning to a  
3 fully cloud-based solution for communications was too complex and high-risk at this  
4 point. The Company's legacy network design still relies heavily on microwave links  
5 back to the Company's data centers.

6 **Q. What is the status of the Skype for Business Phase 2 project?**

7 A. Phase 2 was placed in service in September 2020, though the project has stayed active  
8 in order to complete lingering phone deployments at remote locations, as well as to  
9 address deployments that were delayed due to weather, resource availability, or natural  
10 disasters. The costs to date for Skype for Business Phase 2 are \$1.7 million on a  
11 system-wide basis or \$195 thousand on a Washington-allocated basis.

12 Overall, the Skype for Business project has been a success for NW Natural.  
13 Skype has improved how we communicate both internally and with customers, and has  
14 had significant impacts during the COVID-19 pandemic. The Skype for Business  
15 project was able to rapidly enable flexible communications, headset deployment, and  
16 remote work options. Skype for Business was an important tool to enable NW Natural  
17 to continue to provide excellent customer service throughout this challenging year.

18 **G. Contact Center and Interactive Voice Response (IVR) Solutions**

19 **Q. Please describe the Contact Center and IVR Solutions project.**

20 A. The Contact Center and IVR Solutions project modernizes the Company's Contact  
21 Center and customer service functions. The Company's previous Contact Center and  
22 IVR systems involved long menu formats, resulting in lengthier customer calls and less  
23 successful service outcomes. The Contact Center and IVR Solutions project takes

1 advantage of new customer service platforms like text messaging, web chat, and natural  
2 speech recognition to create more natural and intuitive IVR calls, more efficient  
3 customer service, and a vastly improved self-service experience.

4 In addition, the Contact Center and IVR Solutions project establishes a more  
5 robust disaster recovery set-up, ensuring that customers can reach NW Natural in case  
6 of disaster or emergency.

7 **Q. Is the Contact Center and IVR Solution project in service?**

8 A. Yes. This project was placed in service in October 2020, for a total project cost of  
9 \$3.1 million on a system-wide basis, or \$357 thousand on a Washington-allocated  
10 basis.

11 **H. Security Alerting and Monitoring**

12 **Q. Please describe the Security Alerting and Monitoring project.**

13 A. The Security Alerting and Monitoring project implements a tool to collect security logs  
14 from a variety of sources (including operating systems, web servers, applications, etc.)  
15 to monitor security-related events and detect potential security threats and incidents.  
16 While NW Natural is working hard to improve its security measures and prevent  
17 incidents from occurring, it is crucial that the Company also establish early detection  
18 measures to minimize the potential impacts of any breach, particularly as the risks of  
19 cyber attacks have continued to increase in recent years. Prior to this project,  
20 NW Natural lacked a centralized system for monitoring cyber attacks and cyber threats.

1 **Q. Is the Security Alerting and Monitoring project complete?**

2 A. Yes. This project was completed in December 2020, for a total project cost of  
3 \$1.9 million on a system-wide basis, or \$223 thousand on a Washington-allocated  
4 basis.

5 **I. SAP Learning Management System (LMS)**

6 **Q. Please describe the SAP LMS project.**

7 A. The SAP LMS project implements a cloud-based module of the broader SAP  
8 SuccessFactors software, which is a comprehensive human resources tool. This project  
9 provides a single, end-to-end solution for employee training, as well as tracking and  
10 management. The new platform not only increases organizational efficiency, but  
11 reduces legal risk and improves the Company's ability to attract, develop, and retain  
12 quality employees.

13 **Q. What is the status of the SAP LMS project?**

14 A. The SAP LMS project will be complete in February 2021. The total project cost is  
15 expected to be \$1.7 million on a system-wide basis, or \$193 thousand on a Washington-  
16 allocated basis.

17 **J. SAP SuccessFactors Employee Central (EC) and Onboarding**

18 **Q. Please describe the SAP SuccessFactors EC and Onboarding project.**

19 A. This project implements a tool to replace the Company's existing human capital  
20 management ("HCM") system and onboarding process, which has limited  
21 functionality, will no longer be supported by SAP in 2027, and relies substantially on  
22 manual data entry. Crucially, the SAP SuccessFactors EC and Onboarding project

1 allows NW Natural to establish the technical foundation for HCM as the Company  
2 replaces the balance of its existing modules through Horizon 1.

3 **Q. What is the status of the SAP SuccessFactors EC and Onboarding project?**

4 A. The SAP SuccessFactors EC and Onboarding project will be complete in June 2021.  
5 The total project cost is expected to be \$1.7 million on a system-wide basis, or \$191  
6 thousand on a Washington-allocated basis.

7 **K. Planview Implementation**

8 **Q. Please describe the Planview Implementation project.**

9 A. The Planview Implementation project provides a set of new, enterprise-wide tools that  
10 will track and manage the Company's projects and technologies. These tools consist  
11 of four cloud-based modules developed by the software company Planview, addressing  
12 (1) project/portfolio management, (2) strategic planning, (3) enterprise architecture,  
13 and (4) application portfolio management.

14 The Planview Implementation project is needed to improve the Company's  
15 existing project and technology management processes. Currently, the Company relies  
16 on manual processes to perform these project and technology tracking functions (for  
17 instance, using an Excel spreadsheet with a list of software applications) that are both  
18 time-consuming and prone to error. Similarly, the lack of comprehensive, enterprise-  
19 wide project management tools results in poor visibility and cumbersome management  
20 of project budgets, which both complicates and slows project tracking and reporting.  
21 The lack of enterprise-wide visibility also makes it more difficult to manage and  
22 prioritize investments and allocate resources.

1           In contrast, the new Planview tools are expected to simplify and streamline  
2 project and technology management by creating a single source of information with  
3 enterprise-wide visibility. As a result, the tools are expected to increase efficiency and  
4 productivity, allow for more proactive management of technical debt, and facilitate  
5 better-informed strategic decision-making.

6 **Q.    What is the status of the Planview Implementation project?**

7 A.    The Planview Implementation project will be complete in September 2021. The total  
8 project cost is expected to be \$2.4 million on a system-wide basis, or \$276 thousand on  
9 a Washington-allocated basis.

10 **L.   BI Strategy/Power BI Deployment**

11 **Q.    Please describe the BI Strategy/Power BI Deployment project.**

12 A.    The BI Strategy/Power BI Deployment project improves the Company's enterprise data  
13 analytics to enable more data-driven business decision-making. Data analytics are  
14 developed by the Company's Business Analytics team, and are used for a range of  
15 critical business purposes—from safety to efficiency, damage prevention, valve  
16 maintenance, and emergency tracking. For instance, effective data analytics allow the  
17 Company to track and report on emergency response times, volumes, and areas  
18 affected, thereby allowing the Company to allocate resources more effectively.  
19 Similarly, data analytics are necessary to provide comprehensive damage prevention  
20 reports to state regulators, identify risk areas, and guide future investments. In sum,  
21 this is a capability central to the Company's operations and effective decision-making.

22           Previously, the Company has largely relied on Microsoft Excel to perform data  
23 analytics, which is relatively cumbersome and requires analysts to dedicate more than

1 80 percent of their time to extracting and correcting data. This limited functionality  
2 leaves little time for analysis.

3 In contrast, the BI Strategy/Power BI Deployment project provides access to  
4 Microsoft’s Power BI stack—a dedicated package of data analytics tools. These tools  
5 enable analysis and movement of data from various Company systems to a single data  
6 warehouse, where it can then be used to publish analytics and develop reports. The BI  
7 Strategy/Power BI Deployment project also involves moving existing data onto the  
8 new platform, while also designing and implementing data governance protocols to  
9 ensure that the central data warehouse reflects consistent, accessible, and high-quality  
10 data.

11 **Q. What is the status of the BI Strategy/Power BI Deployment project?**

12 A. The Power BI stack has been incorporated into the Company’s system, and NW Natural  
13 has already begun compiling data resources and tools (such as dashboards and reports)  
14 necessary to meet individual business needs (also known as “use cases”). So far, the  
15 Company has completed 27 use cases supporting business needs such as emergency  
16 response, gas control, energy efficiency, and a range of other functions. Each new use  
17 case is placed in service separately as each is completed. As a result, the project’s total  
18 cost of \$1.3 million—on a system-wide basis, or \$147 thousand on a Washington-  
19 allocated basis—is placed in service on a rolling monthly basis through August 2021.  
20 Of this total, approximately \$111 thousand to \$125 thousand (or \$13 thousand to \$14  
21 thousand on a Washington-allocated basis) enters service each month between October  
22 2020 and August 2021.



1 **M. IT&S Project Updates From UG-181053**

2 **Q. Has the Company previously sought recovery for any major IT&S projects that**  
3 **have been completed since the Company's 2019 rate case (Docket UG-181053)?**

4 A. Yes. In its last rate case, the Company sought cost recovery for two IT&S projects:  
5 Network Control Systems ("NCS") Tech Refresh and NCS Tech Refresh Microwave.  
6 In Order 06 in Docket UG-181053, the Commission approved and adopted the parties'  
7 Joint Settlement Agreement, which removed these two projects from rate base to reflect  
8 the fact that they were not yet in service.<sup>8</sup>

9 **Q. Please provide an update on these two projects.**

10 A. The Company completed and placed in service the NCS Tech Refresh and the NCS  
11 Tech Refresh Microwave projects in June and February of 2020, respectively. The  
12 NCS Tech Refresh involved approximately \$113 thousand in incurred costs on a  
13 system-wide basis, or \$13 thousand on a Washington-allocated basis. The NCS Tech  
14 Refresh Microwave involved approximately \$206 thousand in incurred costs on a  
15 system-wide basis, or \$24 thousand on a Washington-allocated basis. The Company  
16 has included the costs of these two projects in its revenue requirement in this case.

17 **IV. YEAR TWO PROJECTS**

18 **A. Horizon Program Overview**

19 **Q. Please describe the Horizon program generally.**

20 A. NW Natural's Horizon program is a seven-year, two-phase IT&S initiative to  
21 implement necessary upgrades to NW Natural's technology architecture. Each phase

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<sup>8</sup> UG-181053, Order 06 at 21-22.

1 (“Horizon 1” and “Horizon 2”) is driven by a significant keystone project to upgrade a  
2 major piece of software, using new software tools developed by a single software  
3 development company, SAP.<sup>9</sup> The first phase of this project, Horizon 1, will enter  
4 service during the MRP proposed in this case. My testimony therefore provides an  
5 overview of the entire Horizon program, before focusing on Horizon 1 in more detail.

6 **Q. Please briefly describe Horizon 1 and Horizon 2.**

7 A. Horizon 1 involves (1) a single central project, (2) a series of related upgrades and  
8 replacements, and (3) 31 smaller prerequisite projects. Horizon 1’s central project  
9 upgrades the current outdated system that manages the Company’s key business  
10 functions, such as accounting, operations, human resources, asset management, and  
11 field management. This framework for the Company’s essential business functions is  
12 known as an enterprise resource planning (“ERP”) platform. In addition to the ERP  
13 platform replacement, Horizon 1 addresses risks associated with a number of other  
14 integrated and related systems—many of which are also end-of-life—that will be either  
15 upgraded or replaced with the new ERP platform’s functionality. Horizon 1 also  
16 includes 31 additional smaller projects that are prerequisites to the larger ERP platform  
17 upgrade.

18 Horizon 2’s central project involves upgrading and replacing NW Natural’s 21-  
19 year-old CIS platform. CIS is the integrated framework that manages essential  
20 customer-facing functions, such as billing and customer field services. Horizon 2 also

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<sup>9</sup> SAP (Systeme, Anwendungen und Produkte in der Datenverarbeitung) is a German software company and international leader in enterprise software programs.

1 includes a series of smaller prerequisite projects that support or integrate with the  
2 Company's CIS platform upgrade.

3 Together, NW Natural's ERP and CIS provide the twin frameworks for  
4 managing and integrating the Company's essential business and customer-facing  
5 functions, making these two platforms foundational pillars supporting NW Natural's  
6 ability to effectively and efficiently serve customers.

7 **Q. Please summarize how NW Natural developed the Horizon program.**

8 A. NW Natural developed the Horizon program with the support of outside experts,  
9 industry surveys, and extensive communications (including site visits) with other  
10 utilities that have already undertaken—or are in the process of implementing—similar  
11 foundational upgrades. As part of this process, NW Natural worked with top-tier  
12 vendors that have extensive experience with utilities to analyze the Company's ERP  
13 and CIS platforms, identify strategic options, and help create a roadmap for the program  
14 as a whole. Between 2016 and 2019, NW Natural commissioned several studies to  
15 carefully examine how best to invest in technology across the Company's ERP, CIS,  
16 and other systems.

17 **Q. Please describe these studies.**

18 A. In 2016, NW Natural commissioned a study from TMG Consulting ("TMG"), an  
19 independent consulting company that specializes in CIS, to develop an application plan  
20 and business case for the potential upgrade, enhancement, migration, or replacement of  
21 the existing CIS platform. The TMG study recommended that the Company move  
22 forward with a CIS replacement strategy within the next several years, and transition

1 to a new solution that allows for external, vendor-provided support and ongoing  
2 product upgrades.

3 Infosys completed a second study in the first quarter of 2019, which provided a  
4 reliability assessment of NW Natural's ERP platform and use of SAP. Infosys  
5 evaluated the current and future state of the ERP landscape and set out an  
6 implementation strategy and roadmap—accounting for improvement opportunities,  
7 potential benefits, success metrics, and high-level cost estimates. The Infosys study  
8 recommended that NW Natural move forward with the SAP ERP upgrade as the first  
9 step, before turning to the CIS replacement, because the CIS would be developed on  
10 the new ERP platform foundation. This order of operations would minimize the need  
11 to customize the CIS, while limiting both costs and risks.

12 Deloitte completed a third study in the second quarter of 2019, which provided  
13 a reliability assessment of NW Natural's CIS platform. This study identified a list of  
14 outstanding CIS projects needed to prepare for CIS replacement, verified TMG's  
15 conclusion that a CIS replacement is needed, and confirmed Infosys's recommendation  
16 that the ERP upgrade take place before the CIS replacement.

17 **Q. Please summarize the results of NW Natural's study and development process.**

18 A. With the support of the above studies and extensive analysis, NW Natural developed  
19 the two-phase Horizon program for the coordinated replacement of the existing ERP  
20 and CIS platforms, consolidating both under a single third-party software provider  
21 (SAP). Through this process, NW Natural also identified which integrated and related  
22 systems would need to be either upgraded alongside or replaced by the new ERP and  
23 CIS platforms, as they are also end-of-life or nearing end of support. As both of NW

1 Natural’s ERP and CIS platforms are nearing end-of-life, it is crucial that the Company  
2 proceed with the timely transition of these systems to continue to support the provision  
3 of reliable, secure, and high-quality service to customers.

4 **Q. Is NW Natural currently seeking cost recovery for any Horizon project as part of**  
5 **this rate case?**

6 A. Yes. NW Natural seeks cost recovery for Horizon 1 in Year Two of the proposed MRP  
7 in this case.<sup>10</sup> While portions of Horizon 1 will enter service before Year 1 of the  
8 MRP—including 12 of the 31 prerequisite projects—the rest of Horizon 1 will enter  
9 service by October 2022. NW Natural therefore proposes to include the entirety of this  
10 project in Year 2. Based on current total system estimates, Horizon 1 as a whole will  
11 entail approximately \$73.2 million in capital investment (\$8.4 million Washington-  
12 allocated), \$3.9 million of net incremental ongoing operations and maintenance  
13 (“O&M”) costs (\$0.5 million Washington-allocated), and \$8.4 million in one-time  
14 O&M start-up costs (\$0.8 million Washington-allocated).<sup>11</sup>

15 **Q. Do you provide a more detailed breakdown of the costs for the Horizon 1?**

16 A. Yes. A more detailed breakdown of the expected costs for the Horizon 1 project is  
17 included as confidential exhibit Exh. JRD-2C. This breakdown is offered  
18 confidentially because most of these costs (including the expected costs for the 31  
19 prerequisite projects) are currently subject to negotiation and procurement processes—

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<sup>10</sup> For more discussion of the Company’s MRP proposal, please see the Direct Testimony of Zachary Kravitz (Exh. ZDK-1T).

<sup>11</sup> NW Natural has filed a separate deferred accounting application to track and defer the combined incremental O&M costs associated with Horizon 1, with the understanding that these costs will be amortized and begin to be included in rates in Year Two of the proposed MRP; however, the revenue requirement impact of these costs are not currently included in Year Two rates.

1 meaning that disclosure could undermine NW Natural’s negotiation position and  
2 potentially increase costs for customers. These procurement processes will seek to  
3 retain (1) a system integration consulting firm that will lead the implementation process  
4 of the key ERP upgrade and related system upgrades and replacements; and (2) third-  
5 party consultants to implement the prerequisite projects. These procurement processes  
6 will allow NW Natural to provide updated cost estimates and timelines in its reply  
7 testimony. For discussion of the review and update process for Horizon 1 costs as part  
8 of NW Natural’s proposed MRP, please see the Direct Testimony of Zachary Kravitz  
9 (Exh. ZDK-1T).

10 **Q. Please describe the net incremental O&M costs associated with Horizon 1.**

11 A. After Horizon 1 is placed in service in October 2022, it will entail annual ongoing  
12 O&M costs of \$6.2 million. However, this amount will be significantly offset with  
13 ongoing O&M cost-saving benefits, including (1) a reduction of \$0.7 million related to  
14 software that we will no longer need, and (2) \$1.5 million in O&M savings that we will  
15 realize from increased efficiencies. These offsets yield a net incremental ongoing  
16 O&M of \$3.989 million on a system-wide basis—or \$460 thousand on a Washington-  
17 allocated basis—associated with the cloud-based subscription service of the new ERP  
18 platform. The Company’s analysis of the relative benefits of cloud-based and on-  
19 premise solutions, as well as the potential for offsetting savings and other benefits, are  
20 discussed in more detail below.

1           **B. Horizon 1 Details**

2           **Q.     Please provide more detail concerning Horizon 1.**

3           A.     The central Horizon 1 project involves upgrading NW Natural’s ERP—the backbone  
4           software that manages and integrates the Company’s essential business functions. The  
5           essential business functions involved in the ERP platform can be understood as falling  
6           into five broad categories: (1) enterprise asset management (e.g., tracking and  
7           managing plant lifecycles and maintenance); (2) supply chain management (e.g.,  
8           handling procurement and inventory management); (3) finance (e.g., performing  
9           accounting and reporting); (4) human capital management (e.g., managing payroll and  
10          benefits); and (5) environmental, health, and safety management (e.g., tracking and  
11          coordinating responses to safety issues). Efficient and reliable operation of all of these  
12          functions is essential to NW Natural’s provision of service to customers.

13                     NW Natural’s existing ERP is an SAP product known as the SAP ERP Central  
14          Component (“SAP ECC”). The new SAP ERP software is called SAP S/4HANA. To  
15          be clear, SAP is the software developer; ERP is the category of software tool; and SAP  
16          ECC and SAP S/4HANA are different types of ERP software platforms.

17                     To facilitate the ERP upgrade, Horizon 1 includes 31 smaller prerequisite  
18          projects, ranging from data cataloguing to developing new asset management policies  
19          to establishing a series of new security protocols. These prerequisite projects will  
20          ensure NW Natural has the necessary technical processes and policies in place to  
21          support the new ERP upgrade.

22                     Along with the central ERP platform upgrade, Horizon 1 includes a number of  
23          related projects to upgrade and consolidate NW Natural’s ageing IT&S infrastructure.

1 The ERP platform is integrated with many other applications that are at (or nearing)  
2 the end of their useful life. Moreover, the new SAP S/4HANA ERP platform's  
3 functionality will be able to replace a number of these ageing platforms, thereby  
4 streamlining NW Natural's IT&S operations. By conducting these upgrades at the  
5 same time as the Company moves to the new ERP platform, NW Natural can maximize  
6 the benefits of the SAP S/4HANA transition, reduce the complexity of its system, and  
7 address critical system risks—all while minimizing overall costs to customers.

8 **Q. Why is NW Natural transitioning to a new ERP platform?**

9 A. NW Natural is upgrading to a new ERP for three central reasons: First, the new ERP  
10 will provide the foundation for CIS replacement in Horizon 2, meaning that a durable  
11 ERP platform is essential. Second, the existing ERP platform is end-of-life and will  
12 no longer be supported by the developer after 2027<sup>12</sup>—meaning that, as a general  
13 matter, there will be no repairs or enhancements. Third, the current platform does not  
14 adequately support NW Natural's range of business needs that are necessary to serve  
15 customers.

16 **Q. Why is NW Natural upgrading the ERP platform now, rather than waiting until**  
17 **closer to 2027?**

18 A. NW Natural is upgrading the ERP platform now for several reasons. First, delaying  
19 the ERP upgrade would also delay the critically needed CIS upgrade. As detailed in

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<sup>12</sup> SAP News, "SAP Extends Its Innovation Commitment for SAP S/4HANA, Provides Clarity and Choice on SAP Business Suite 7," (Feb. 4, 2020), available at: <https://news.sap.com/2020/02/sap-s4hana-maintenance-2040-clarity-choice-sap-business-suite-7/>. In February 2020, SAP extended the support deadline from 2025 to 2027. SAP News, "SAP Committed to Innovation and Choice for SAP Business Suite Applications," (Oct. 14, 2014) (announcing that maintenance for legacy software will be supported "until end of 2025"), available at: <https://news.sap.com/2014/10/sap-committed-innovation-choice-sap-business-suite/>.



1 the 2019 Infosys and Deloitte studies, it is important to complete the ERP upgrade  
2 before transitioning the Company's existing CIS platform in Horizon 2 to avoid  
3 extensive unnecessary customizations and increased overall expense. Two different  
4 third-party studies recommended that NW Natural first pursue the ERP upgrade prior  
5 to replacing the CIS. Moving forward with the CIS upgrade is crucial because the  
6 current CIS is over two decades old, relies on an outdated programming language, and  
7 lacks modern-day connectivity, archiving, and disaster-recovery capabilities.  
8 Proceeding with the Horizon 1 ERP upgrade will allow the Company to turn to the  
9 Horizon 2 CIS upgrade in as timely a manner as possible, while saving on overall costs  
10 and avoiding unnecessary implementation risks.

11 Second, the cost to upgrade to the new software is likely to increase  
12 substantially as the software company's 2027 support deadline approaches. Many  
13 different companies (including more than 20 utilities) rely on the existing SAP ECC  
14 software package, meaning that many different companies are—or soon will be—in  
15 the process of finding and installing replacement systems. This replacement effort  
16 requires the use of outside consultants to both perform and help oversee the critical  
17 upgrade process. Growing competition for these outside consultants means that  
18 waiting could substantially increase the necessary costs.

19 Third, it is important to proceed with the upgrade to the new ERP platform  
20 because the existing ERP software has limited functionality. The current system is  
21 11 years old, has a long list of deferred enhancements, and is operationally  
22 cumbersome—requiring employees to use multiple applications to complete tasks and  
23 relying heavily on manual entries. For example, many key business and financial

1 reports are very slow to generate, requiring an inordinate amount of time compared to  
2 more modern ERP platforms and requiring finance staff to be onsite in off-hours to  
3 close accounting books. As discussed in more detail below, the new S/4HANA ERP  
4 platform provides a number of operational improvements and cost-saving benefits as  
5 compared to the existing SAP ECC software.

6 **Q. On February 4, 2020, SAP extended its mainstream support deadline for the**  
7 **current version of NW Natural's ERP from 2025 to 2027. In light of this 2-year**  
8 **extension, did NW Natural consider delaying the move to SAP S/4HANA?**

9 A. Yes. However, the results of this additional analysis supported moving forward with  
10 the transition to SAP S/4HANA now. Following SAP's announcement, the Company  
11 examined the costs and benefits of delaying the ERP replacement project. As noted  
12 above, NW Natural's decision to proceed with the SAP ERP upgrade was driven by  
13 (1) the need to support the CIS upgrade because the current platform is antiquated;  
14 (2) the likelihood of substantial implementation cost increases as the support deadline  
15 approaches; and (3) the inadequacy of the current ERP platform for NW Natural's  
16 business and customer-service needs. Delaying the move to SAP S/4HANA would  
17 increase the cost and risk of the CIS upgrade, increase the overall costs of the transition,  
18 and fail to address the functionality concerns of the existing ERP platform. With these  
19 concerns in mind, NW Natural concluded that it was prudent to proceed with the  
20 transition to SAP S/4HANA.

1 **Q. Will any portion of Horizon 1 costs will be included in Year 1 of the proposed**  
2 **MRP?**

3 A. No. While 12 of the 31 prerequisite projects will be complete and in-service between  
4 July and October 2021, NW Natural proposes to wait to include Horizon 1 costs until  
5 Year 2 of the MRP. As noted above, estimated cost breakdowns are included in the  
6 confidential Exh. JRD-2C, to avoid undermining the competitiveness of the impending  
7 procurement processes.

8 **C. Horizon 1 Benefits**

9 **Q. What are the expected benefits of the new S/4HANA ERP software?**

10 A. In addition to supporting Horizon 2's replacement of the 21-year-old CIS platform, the  
11 new S/4HANA ERP software is a secure, modern platform that is expected to provide  
12 substantial improvements in enterprise asset management, supply chain management,  
13 finance, IT&S capabilities, human capital management, and environmental, healthy,  
14 and safety performance.

15 • **Enterprise Asset Management:** The new platform is expected to increase overall  
16 system stability by transitioning away from end-of-life, end-of-support software  
17 systems, eliminating duplicate order entries on various order types, and increasing  
18 the efficiency of work order processing.

19 • **Supply Chain Management:** The new platform is expected to improve inventory  
20 management by lowering the need for on-hand supplies, resulting in lower  
21 inventory carrying costs. It is also anticipated to help the Company to better  
22 optimize contract compliance and management and to streamline oversight of  
23 construction services.

- 1       • **Finance:** The new ERP platform consolidates and automates processes that are  
2       currently time-intensive and manual, provides real-time data and analytics, and is  
3       expected to improve the accuracy of information through a timely consolidation  
4       tool.
- 5       • **IT&S:** The new platform is expected to carry all of the security, agility, and support  
6       benefits of a cloud-based solution (discussed below), to allow for faster upgrades  
7       with out-of-the-box functionality, and to significantly improve data governance and  
8       quality.
- 9       • **Human Capital Management:** The new platform is expected to reduce  
10      administration costs, reduce errors in merit-based compensation planning, payroll,  
11      benefits, and overtime tracking, improve visibility into the effectiveness of the  
12      Company's Diversity, Equity, and Inclusion efforts, and create savings by  
13      eliminating paper mailings.
- 14     • **Environmental, Healthy, and Safety:** The new platform is expected to streamline  
15      the Company's Environmental, Health, and Safety data sources, reduce manual  
16      processes, and enable better reporting—and, by extension, reduce employee  
17      injuries.
- 18     • **Reporting Capabilities:** The new platform is expected to provide significantly  
19      greater functionality in preparing financial reports for regulatory purposes,  
20      including reporting to both state and federal regulators. Currently, the Company's  
21      IT&S infrastructure has barriers and fragmentation in its data tracking and  
22      recording; this process will be streamlined and consolidated under the new ERP

1 platform, allowing for streamlined accounts payable, greater visibility and details  
2 into financial ledgers, and real-time reporting with any level of detail.

3 As the new ERP is integrated with other technical components of the Company's  
4 business processes, NW Natural's productivity is expected to increase as users  
5 maximize the functionality of the new program. NW Natural anticipates that these  
6 various improvements and efficiencies will allow for substantial ongoing O&M cost  
7 savings.

8 **Q. Are the above benefits reflected in NW Natural's ongoing O&M costs?**

9 A. Yes. As noted above, NW Natural's proposed net ongoing incremental O&M costs  
10 for Horizon 1 is \$3.989 million on a system-wide basis (\$460 thousand on a  
11 Washington-allocated basis)—an amount that includes forecasted O&M cost savings.  
12 While the direct ongoing O&M cost for Horizon 1 will be \$6.2 million, these costs  
13 will be offset by two types of Horizon 1 O&M cost savings: (1) \$0.7 million in  
14 reduced costs as replaced or retired applications are removed, and (2) \$1.5 million in  
15 cost savings associated with the diverse Horizon 1 benefits, listed above. These  
16 savings reflect identifiable reductions in O&M costs that are currently included in  
17 revenue requirement, largely driven by expected improvements to supply chain  
18 management and organizational efficiencies. Thus, through the Company's use of  
19 *net* ongoing incremental O&M, NW Natural has committed to achieving these  
20 expected O&M benefits as an offset to ongoing O&M costs for Horizon 1.

1 **Q. Does the new S/4HANA ERP platform avoid the need for other costly**  
2 **investments?**

3 A. Yes. The new S/4HANA ERP platform will avoid the need for substantial, costly  
4 investments that would otherwise be necessary to sustain the viability of the  
5 Company's current ERP platform and other key applications. NW Natural anticipates  
6 that the S/4HANA ERP platform will avoid the need for approximately \$13.4 million  
7 in additional costs on a system-wide basis, or \$1.5 million on a Washington-allocated  
8 basis.

9 **D. Horizon 1 Alternatives**

10 **Q. What alternatives did NW Natural consider to the S/4HANA ERP upgrade?**

11 A. NW Natural considered several alternatives, including (1) transitioning to a non-SAP  
12 platform, such as Oracle; (2) deferring the SAP S/4HANA upgrade to a future date;  
13 and (3) maintaining the existing legacy software platform.

14 **Q. Why did NW Natural decide not to transition to a non-SAP platform?**

15 A. NW Natural did not select the non-SAP platform alternative both because this option  
16 entailed significantly higher estimated implementation and support costs, and because  
17 transitioning to a different software provider would significantly complicate the  
18 transition and upgrade process. SAP is the industry leading solution for ERP software,  
19 with far more utilities relying on SAP than Oracle.

20 **Q. Why did NW Natural decide not to defer the SAP S/4HANA upgrade?**

21 A. NW Natural decided not to defer the SAP S/4HANA upgrade because, as described  
22 above, delaying the upgrade would also interfere with the CIS transition of Horizon 2,  
23 the current SAP platform is nearing end-of-life, and the costs of a deferred transition

1 could substantially increase as there is greater competition for outside consultants.  
2 Delaying the upgrade would also have required interim upgrade solutions for other end-  
3 of-life platforms, increasing the cost and risk of the overall Horizon program.

4 **Q. Why did NW Natural decide not to continue with the existing legacy software**  
5 **platform?**

6 A. NW Natural decided not to continue with the existing legacy software because (1) the  
7 existing software will no longer receive mainstream support from SAP after 2027;  
8 (2) significant investment would be required to remediate current applications issues  
9 that cannot be further delayed; and (3) safety and reliability risks could increase to an  
10 unsustainable level.

11 **Q. How did NW Natural decide on a cloud-based solution for the ERP platform?**

12 A. NW Natural conducted a thorough alternatives analysis to determine whether an on-  
13 site or cloud-based approach for Horizon 1 and other operating systems would provide  
14 the greatest customer benefits—with respect to costs and other factors, such as  
15 reliability. Implementing a cloud-based system frequently requires more near-term  
16 transitional costs to migrate to the new type of software infrastructure. However, a  
17 cloud-based solution can nonetheless be the most cost-effective option in the long term,  
18 provide the greatest operational flexibility, and reduce business and IT&S risks through  
19 enhanced cloud-based security and more resilient operations.

20 **Q. Did NW Natural analyze on-premise and cloud-based solutions?**

21 A. Yes. NW Natural carefully considered the relative benefits of cloud-based services and  
22 an on-premise solution. The on-premise solution was not selected because it was the  
23 most expensive option, relied heavily on NW Natural staffing resources, and provided

1 the least flexibility for platform updates. Indeed, the on-premise solution would have  
2 entailed an increase in both capital expense and O&M, as compared to the selected  
3 cloud-based option.

4 NW Natural selected the cloud-based solution for a number of reasons,  
5 including the fact that it was the least costly and the most flexible, will allow both SAP  
6 and non-SAP systems to be hosted in the same environment, and comes with 24/7  
7 support.

8 **E. Horizon 1 Implementation**

9 **Q. What is the process for implementing Horizon 1?**

10 A. Horizon 1 is being implemented in three primary phases, beginning with a detailed pre-  
11 planning and scoping process (6 months), followed by developing the prerequisite  
12 supporting projects (approximately 8 months), before undertaking the ERP transition  
13 and upgrade (17 months). The pre-planning process was completed in September 2020,  
14 and 12 of the 31 prerequisite projects will enter service between July and October 2021.  
15 The core ERP upgrade will begin in May 2021 and will enter service by October 2022,  
16 along with the remaining prerequisite capital projects. As noted above, while some  
17 portions of Horizon 1 will be in service during Year One of the proposed MRP, NW  
18 Natural proposes to place all of the Horizon 1 costs in rates during Year Two of the  
19 proposed MRP.

20 **Q. Please describe the pre-planning process for Horizon 1.**

21 A. In the pre-planning process, NW Natural worked with a third-party consultant to  
22 determine the scope and extent of the ERP upgrade, including (a) new functionality  
23 that will be enabled, (b) required business process changes, and (c) an assessment of



1 whether the upgraded ERP should be deployed onsite, in the cloud, or through a hybrid  
2 hosting approach.<sup>13</sup> This pre-planning process involved more than 80 workshops,  
3 evaluated over 20 different vendors, developed a detailed analysis of future capabilities,  
4 and created process narratives to guide development and implementation. The pre-  
5 planning process also yielded a more reliable price estimate for the ERP upgrade's  
6 implementation and ongoing support.

7 NW Natural conducted a competitive bid process to identify which third-party  
8 consultant would assist the Company with the pre-planning process. Deloitte was  
9 chosen due to its experience with projects of this type in a utility setting, allowing the  
10 Company to make use of Deloitte's preexisting tools and best practice templates.

11 **Q. What are the next steps in the ERP project development?**

12 A. The next step in the ERP project development is preparing a procurement process  
13 which, as described above, will select a system integrator to implement the projects,  
14 and will help establish specific implementation milestones. The procurement process  
15 is expected to begin in the first quarter of 2021. Once the procurement process is  
16 complete and a system integrator is established to facilitate the integration process, NW  
17 Natural will work in partnership with the consultant, SAP, and third-party vendors to  
18 develop a detailed project schedule.

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<sup>13</sup> As discussed above, a cloud-based solution was ultimately selected.

1 **Q. What processes or practices will NW Natural adopt to guard against overruns in**  
2 **time and investment in the Horizon projects?**

3 A. To help ensure that the projects proceed on-time and at a reasonable cost, NW Natural  
4 will hire an independent outside expert to help obtain software and services at a  
5 reasonable price point, and has established a project governance structure, including  
6 senior executives, that will track project performance and provide management  
7 oversight.

8 By approaching NW Natural's IT&S needs in a systematic, deliberate, and  
9 comprehensive manner, the Horizon program ensures that NW Natural is making  
10 prudent and timely investments to ensure the efficiency, resilience, and security of its  
11 technological foundation, and will thereby allow the Company to continue to provide  
12 safe, adequate, and reliable service to customers.

13 **V. CONCLUSION**

14 **Q. What are your recommendations regarding the IT&S projects described in your**  
15 **testimony?**

16 A. I propose the Commission approve cost recovery for these projects. As described in  
17 my testimony above, these projects are necessary for NW Natural to continue to  
18 provide safe and reliable service and will provide an improved and secure customer  
19 experience.

20 **Q. Does this conclude your direct testimony?**

21 A. Yes.

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**VI. LIST OF EXHIBITS**

Exh. JRD-2C.....Horizon 1 Project Cost Breakdown  
(Confidential and Redacted)