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December 1, 2015

VIA ELECTRONIC FILING

PUC Filing Center
Public Utility Commission of Oregon
PO Box 1088
Salem, OR 97308-2148

Re: Docket No. UG 286 & UM 1722 – In the Matter of Request to Continue Schedule 177, the System Integrity Program Recovery Mechanism (UG 286) and Investigation into Recovery of Safety Costs by Natural Gas Utilities (UM 1722)

Dear PUC Filing Center:

Attached for filing in the above referenced case is an electronic copy of the Joint Opening Testimony of Northwest Natural Gas Company, Avista Utilities, and Cascade Natural Gas in UM 1722, along with the Northwest Natural's Opening Testimony of Mark Thompson and Joe Karney in UG 286.

If you have any questions, please do not hesitate to contact this office.

Very truly yours,

A handwritten signature in black ink, appearing to read "Lisa F. Rackner". The signature is fluid and cursive, with a large loop at the end.

Lisa F. Rackner

Attachments

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NWN/100
Witness: THOMPSON

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

UG 286 & UM 1722

In the Matters of

PUBLIC UTILITY COMMISSION OF
OREGON,

Investigation into Recovery of Safety
Costs by Natural Gas Utilities (UM 1722)

and

NORTHWEST NATURAL GAS
COMPANY, dba NW NATURAL,

Request to Continue Schedule 177, the
System Integrity Program Recovery
Mechanism. (UG 286)

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OPENING TESTIMONY OF MARK THOMPSON

NORTHWEST NATURAL GAS COMPANY

December 1, 2015

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INTRODUCTION AND SUMMARY

Q. Please state your name, position, and relevant history.

A. My name is Mark Thompson. My business address is 220 NW Second Avenue, Portland, Oregon 97209. My current position is Manager of Rates and Regulatory Affairs for Northwest Natural Gas Company, d/b/a NW Natural (“NW Natural” or the “Company”).

Q. Please summarize your educational background and business experience.

A. I have earned a Bachelor of Science degree in Conservation Biology from Brigham Young University in Provo, Utah, and a Juris Doctor degree from Lewis and Clark Law School in Portland, Oregon. From 2004 to 2010, I worked as Staff Counsel at the Public Power Council in Portland, which represents consumer-owned electric utilities in matters including power purchase agreements and policy matters at the federal level, especially in front of the Bonneville Power Administration. During this time period, I also spent about a year working as an associate at the law firm Richardson & O’Leary in Boise, Idaho, where I represented electric power producers and industrial retail customers in proceedings before the Idaho Public Utilities Commission. I joined NW Natural as Manager of Rates and Regulatory Affairs in late 2010.

Q. What is the purpose of consolidated dockets UG 286 and UM 1722?

A. These consolidated dockets have two purposes. *First*, the Commission will decide whether to extend NW Natural’s existing cost recovery mechanism associated with its System Integrity Program (“SIP”). The cost recovery mechanism associated with the SIP allows NW Natural to update its rate base on an annual basis to reflect certain system safety investments. *Second*, the

1 Commission will investigate generally the recovery of safety costs by natural gas
2 utilities.

3 **Q. What is the purpose of your testimony?**

4 A. My testimony addresses only the first issue related to the extension of NW
5 Natural's existing cost recovery mechanism associated with the SIP. For
6 purposes of this testimony, I will use the term "SIP" generally to describe both the
7 actual program and the cost recovery mechanisms associated with the program.

8 **Q. Please summarize your testimony.**

9 A. My testimony provides the policy support for the Company's request to extend
10 the SIP for three additional years. I provide the relevant historical context for the
11 Company's request to extend its SIP. In addition, my testimony demonstrates
12 that extending the SIP is consistent with the regulatory policy underlying its
13 creation and is also consistent with the policy guidelines set forth in the Joint
14 Testimony for approval of safety investment recovery mechanisms. As described
15 in the testimony of NW Natural witness Joe Karney, extending the SIP will keep
16 important regulatory policies in place that allow and support the Company to
17 accelerate and be proactive with respect to investments that enhance the safety
18 and reliability of the Company's system, in accordance with federal, state, and
19 local policies.

20 **BACKGROUND**

21 **Q. Please describe NW Natural's SIP.**

22 A. NW Natural's SIP is a cost recovery mechanism designed to allow the Company
23 to recover certain costs related to infrastructure investment designed to enhance
24 system safety and reliability. Most recently, the SIP consists of three distinct

1 programs: the Bare Steel Program, the Transmission Integrity Management
2 Program (“TIMP”), and the Distribution Integrity Management Program (“DIMP”).

3 **Q. Please describe the Bare Steel Program.**

4 A. The Bare Steel Program was the first component of the SIP approved by the
5 Public Utility Commission of Oregon (“Commission”), which occurred in 2001.¹
6 At that time, Staff had been concerned about the risks posed by the Company’s
7 aging bare steel pipe, as well as the health and safety risks associated with
8 landslides, earthquakes, and washouts.² To address these concerns, NW
9 Natural requested approval of a new tariff, Schedule 177, which was designed to
10 recover the costs associated with the Company’s accelerated bare steel
11 replacement program. The Company also sought recovery of certain geohazard
12 mitigation and repair costs (the “Geohazard Program”).

13 In Order No. 1-843, the Commission approved a stipulation between NW
14 Natural and Staff that allowed for the deferral and recovery of approximately \$3
15 million in bare steel replacement costs annually through the adoption of Schedule
16 177. At the time, NW Natural was investing approximately \$3 million annually to
17 replace bare steel pipe. Under the stipulation, the Company could invest as
18 much as \$9 million annually in its bare steel replacement activities, with the
19 incremental \$6 million considered the accelerated bare steel replacement costs.
20 In addition, the stipulation allowed the Company to defer and recover annual
21 geohazard mitigation and repair costs to the extent those costs were incremental
22 to costs already included in rates.

23 **Q. Please describe the TIMP.**

¹ *Northwest Natural Gas Co.*, Docket No. UM 1030, Order No. 01-843 (Sept. 28, 2001).

² *Id.*, Appendix A at 2-3.

1 A. The TIMP³ resulted from the 2002 Pipeline Safety Improvement Act (“2002
2 Improvement Act”), which required the Office of Pipeline Safety and the
3 Research and Special Programs Administration to issue a new rule that added
4 incremental requirements on the operators of transmission pipelines. The new
5 rule was called the Pipeline Integrity Management in High Consequence Areas
6 Rule (the “IMP Rule”).⁴ The IMP Rule required operators to identify transmission
7 lines in certain “high consequence areas” and to implement written integrity
8 management programs for such areas. A high consequence area, or “HCA,” is a
9 location that is defined in the pipeline safety regulations as an area where
10 pipeline releases have greater consequences to safety, health and the
11 environment. Generally, HCAs are areas with greater population density.

12 In 2004, in response to the new regulations NW Natural sought an
13 additional safety investment mechanism to allow recovery of the incremental
14 requirements for its integrity management program related to its transmission
15 pipelines.

16 In support of its application, the Company pointed out that the work
17 required under the 2002 Improvement Act would ultimately result in an extension
18 of the useful life of NW Natural’s transmission lines,⁵ and further, was required to
19 continue operation of covered sections of NW Natural’s transmission pipeline
20 without pressure reductions.⁶ The Company also explained that the work

³ The TIMP was originally referred to as the “IMP,” which stands for “Integrity Management Program.” The program was renamed once the Company undertook a similar program related to its distribution system.

⁴ 69 Fed. Reg. 2307 and corrected in 69 Fed. Reg. 18277.

⁵ See NW Natural’s Application filed in Docket No. UM 1156 at 5 (June 7, 2004).

⁶ *Id.*

1 required under the IMP Rule was incremental to pre-existing safety regulations
2 and therefore was not duplicative of pre-existing safety costs.⁷

3 Staff supported the Company's proposal and the Commission approved
4 NW Natural's request in Order No. 04-390.

5 **Q. Please describe the DIMP.**

6 A. In 2006 Congress passed the Pipeline Inspection, Protection, Enforcement and
7 Safety Act ("2006 PIPES Act") which expands the scope of the 2002
8 Improvement Act by requiring the U.S. Department of Transportation Pipeline
9 and Hazardous Material Safety Administration ("PHMSA") to prescribe minimum
10 standards for Distribution Integrity Management Programs for distribution mains,
11 services, and other gas related appurtenances. In addition, the PIPES Act
12 significantly increases the requirements of all stakeholders relative to excavation
13 damage prevention. The DIMP was implemented by NW Natural in response to
14 these new laws.

15 **Q. When did the Commission consolidate the Bare Steel Program, TIMP, and**
16 **DIMP into the SIP?**

17 A. In 2009, the Commission approved a stipulation consolidating all three programs
18 into the SIP.⁸ NW Natural's Schedule 177 implements the SIP, under which
19 capitalized costs are reviewed in the Purchased Gas Adjustment ("PGA")
20 process and those judged prudent are included in the permanent rates beginning
21 the next PGA year.

22 **Q. Was the Geohazard Program incorporated into the SIP?**

23 A. Yes, although it was no longer described as an independent program. The
24 Company's activities under the Geohazard Program are mandated under the

⁷ *Id.* at 6.

⁸ *Northwest Natural Gas Co.*, Docket No. UM 1406, Order No. 09-067 (Mar. 1, 2009).

1 TIMP and the DIMP, both of which require the Company to assess all threats to
2 pipelines and related facilities including threats posed by “natural forces,”
3 including geological threats. For these reasons, the activities formerly
4 undertaken by the Company under the Geohazard Program were incorporated
5 into the TIMP and DIMP.

6 **Q. Was the SIP originally intended to expire?**

7 A. Yes. Pursuant to a stipulation approved on March 1, 2009, the SIP program was
8 originally intended to expire at the earlier of October 31, 2011, or the effective
9 date of new rates adopted in the Company’s next general rate case.⁹ However,
10 the program was extended during the 2011 general rate case.

11 **Q. Has the SIP changed over time?**

12 A. Yes. Although the structure of Schedule 177 has remained constant, both the
13 recovery threshold and spending caps have been revised to fit the requirements
14 of the Company’s safety programs.

15 **Q. What is the recovery threshold?**

16 A. The recovery threshold determines the amount that the Company must spend
17 before any incremental costs can be recovered through the SIP. For example,
18 the initial recovery threshold for the Bare Steel Program discussed above was \$3
19 million because the Company could recover only its incremental costs above \$3
20 million.

21 **Q. What is the spending cap?**

22 A. The spending cap is the overall maximum amount that the Company can invest
23 through the SIP, and still add to rates during the PGA process. Again, going

⁹ *Id.*, Appendix 2 at 6.

1 back to the original Bare Steel Program discussed above, the initial spending cap
2 for that program was \$9 million.

3 **NW NATURAL'S CURRENT FILING**

4 **Q. Please describe what NW Natural has requested in docket UG 286?**

5 A. The Company's October 21, 2014, filing requested that the Commission extend
6 its SIP to allow recovery of the Company's ongoing costs to comply with current
7 safety and reliability regulations. The Company requested a three-year
8 extension. The present filing does not change the SIP's structure, but does
9 revise the threshold and cap, and adds an earnings review.¹⁰

10 **Q. What is the newly proposed threshold and cap?**

11 A. Under the Company's proposed revisions, Schedule 177 would allow for the
12 recovery of up to \$8 million of capital costs after the first \$1 million spent for SIP
13 in a PGA year. Thus, the new threshold would be \$1 million and the new cap
14 would be \$9 million.

15 **Q. Please describe the costs that NW Natural is seeking to recover through an
16 extension of the SIP.**

17 A. Attached to NW Natural's October 2014 filing as a work paper that identified the
18 specific activities that were forecast to occur during the three year extension
19 period. The following table summarizes the 12 forecast safety investments that
20 the Company proposed for recovery through the SIP:

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TABLE 1: 3 Year SIP Extension Forecast

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¹⁰ The earnings review was included in a supplemental tariff filing on March 3, 2015.

	2015	2016	2017
1 Bare Steel	\$3,040,520	\$0	\$0
2 ASV/RCV	\$708,653	\$708,653	\$708,653
3 Inserted Steel	\$1,250,000	\$1,250,000	\$1,250,000
4 Ineffective Coating	\$1,000,000	\$1,000,000	\$1,000,000
5 Vintage Plastic	\$309,354	\$309,354	\$309,354
6 Natural Forces	\$250,000	\$820,226	\$820,226
7 Build Overs	\$117,317	\$117,317	\$117,317
8 Coastal Risers	\$42,758	\$42,758	\$42,758
9 Risers - Sunshield	\$69,207	\$69,207	\$69,207
10 MAOP Replacements	\$0	\$1,700,000	\$2,400,000
Wynooski MAOP Replacement		\$1,200,000	
Salem By-pass MAOP Replacement			\$250,000
Newberg Trans MAOP Replacement		\$500,000	\$1,300,000
N Coast Trans MAOP Replacement			\$250,000
Beaver Trans MAOP Replacement			\$100,000
11 Future ILI	\$1,926,604	\$2,051,084	\$2,050,000
S. Mist 24" ILI	\$146,764		
Albany/Corvallis ILI			
SP Newsprint ILI			\$250,000
N Coast Wicks Rd. ILI		\$2,051,084	
P20b 6" Dwyer Lumber	\$1,779,840		
P31 McMinnville 6"			\$1,800,000
12 Class 4 Emergency Response	\$100,000	\$250,000	\$500,000
	\$8,814,411	\$8,318,597	\$9,267,513

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2 The testimony provided by Mr. Karney provides greater detail about each of
3 these activities.

4 **CONSISTENCY WITH PROPOSED GUIDELINES**

5 **Q. Is an extension of the Company's SIP consistent with the guidelines for**
6 **safety investment recovery mechanisms set forth in the Joint Testimony?**

7 A. Yes. As described in the Joint Testimony, the primary policy goal for safety
8 investment recovery mechanisms is the removal of disincentives that may exist

1 with respect to utilities making timely improvements to their systems designed to
2 promote safety and reliability. From the beginning, the SIP (and each of its
3 constituent programs) was designed consistent with this policy.

4 NW Natural's top priority is and has always been safety and reliability and
5 the Company will make required investments regardless of whether the SIP is
6 extended. However, normal ratemaking approaches result in regulatory lag,
7 which can pose as a disincentive to investment. Therefore, policies—like the
8 SIP—that support proactive investment in safety infrastructure can mitigate this
9 disincentive and promote and support investments in a safer and more reliable
10 system.

11 As described in Mr. Karney's testimony, all of the SIP activities planned
12 for the next three years will eventually be required. The requested recovery
13 mechanism supports the continued systematic investment in natural gas system
14 improvements so that we are better positioned to comply with current and future
15 regulatory obligations. It also continues the approach of making steady, well
16 planned, incremental safety-related investments that spreads the rate impact to
17 customers over time.

18 Moreover, the SIP satisfies each of the specific standards for approval of
19 a safety investment recovery mechanism:

- 20 • The SIP qualifies as a plan to replace or improve facilities to advance
21 safety and reliability and is designed to implement federal,
22 state, or local laws or regulations, or public policies.
- 23 • The SIP allows recovery of capital costs that are significant and ongoing
24 and not offset by associated revenues.
- 25 • The SIP allows for prudence reviews and the revised SIP includes an
26 earnings review prior to amortization.

27 **Q. In Mr. Karney's testimony, he indicates that many of the activities the**
28 **Company is seeking to include in the SIP are not strictly required by law—**

1 **at least not on the accelerated schedule proposed by NW Natural. Is there**
2 **precedent for allowing a pipeline operator to use a recovery mechanism to**
3 **recover these types of proactively incurred costs?**

4 A. Yes. As discussed in more detail in the Joint Testimony, the Federal Energy
5 Regulatory Commission (“FERC”) recently issued a Policy Statement adopting
6 standards for safety investment recovery mechanisms. In that proceeding,
7 certain parties argued that the costs eligible for recovery must be limited to those
8 costs which the pipeline demonstrates are specifically tied to laws that have
9 already been enacted or regulations that are currently effective. FERC soundly
10 rejected this argument, noting that the “Department of Transportation has
11 encouraged pipeline operators to undertake voluntary initiatives to improve
12 pipeline safety.”¹¹ FERC continued that allowing recovery of “voluntary initiatives
13 to improve safety, as well as minimize methane emissions, will help encourage
14 such initiatives and thereby benefit the public.”¹² Thus, FERC found that “all
15 prudent one-time capital costs . . . may be included in a cost modernization
16 tracker, regardless of whether PHMSA, EPA or some other government agency
17 has adopted a regulation requiring the incurrence of the cost.”¹³

18 In addition, the establishment of recovery mechanisms for the
19 implementation of new pipeline safety programs has become very common.
20 According to the American Gas Association, as of May of 2014, nearly 40 state
21 regulatory agencies have approved recovery mechanisms for gas utilities that
22 range from accelerated pipe replacement initiatives to implementation of program

¹¹ *Cost Recovery Mechanisms for Modernization of Natural Gas Facilities*, 151 FERC ¶ 61,047 at P 68 (Apr. 16, 2015).

¹² *Id.*

¹³ *Id.*

1 elements that support pipeline safety efforts, including both required and
2 recommended actions.

3 **RESPONSES TO STAFF'S CONCERN**

4 **Q. Staff has argued that there is no need to extend the SIP because the**
5 **Company is no longer in a rate case moratorium and can file a rate case to**
6 **recover its safety investment.¹⁴ How do you respond to this argument?**

7 A. NW Natural does not agree that that the SIP, or safety investment recovery
8 mechanisms generally, are justified only during rate case moratoriums. As
9 described above, the SIP is intended to eliminate regulatory lag and thereby
10 promote and support safety investments. Without a recovery mechanism, gas
11 utilities can mitigate this regulatory lag only by filing frequent rate cases.
12 However, rate cases are expensive, and filing them back-to-back reduces the
13 utility's natural incentive to control costs between cases. Given the option of
14 frequent rate case filings, or continuation of the SIP, the Company believes that
15 customer interests are better served by the SIP.

16 **Q. Is Staff's characterization of the timing of the Company's rate case**
17 **moratorium and its safety programs accurate?**

18 A. No. Staff's memorandum states that the TIMP was approved during the
19 moratorium and that Staff and the "active parties" agreed to the TIMP because
20 the Company could not file a general rate case. However, the TIMP was
21 approved in 2004¹⁵ and the Company's rate case moratorium did not begin until

¹⁴ *Re Northwest Natural Gas Co.*, Dockets Nos. UG 286 & UM 1722, Order No. 15-093, Appendix A at 2 (Mar. 25, 2015).

¹⁵ *Northwest Natural Gas Co.*, Docket No. UM 1156, Order No. 04-390 (July 13, 2004).

1 2007.¹⁶ So at the time that the TIMP was first instituted the Company was not
2 prohibited from filing a general rate case. Moreover, the Bare Steel and
3 Geohazard Programs had been in place since 2001 and therefore also predated
4 the Company's rate case moratorium.

5 **Q. Does this conclude your opening testimony?**

6 A. Yes.

¹⁶ *Northwest Natural Gas Co.*, Dockets Nos. UG 152 & UG 163, Order No. 07-426 (Sept. 26, 2007).

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Witness: KARNEY

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OPENING TESTIMONY OF JOE KARNEY

NORTHWEST NATURAL GAS COMPANY

December 1, 2015

1 Commission will investigate generally the recovery of safety costs by natural gas
2 utilities.

3 **Q. What is the purpose of your testimony?**

4 A. My testimony addresses only the first issue related to the extension of NW
5 Natural's existing cost recovery mechanism associated with the SIP. For
6 purposes of this testimony, I will use the term "SIP" generally to describe both the
7 actual program and the cost recovery mechanisms associated with the program.

8 **Q. Please summarize your testimony.**

9 A. My testimony describes the specific activities that the Company intends to
10 complete during the three year SIP extension period requested by the Company.
11 Each of the activities will enhance the safety and reliability of the Company's
12 system and advance important federal, state, and local policies. Moreover, the
13 SIP will allow the Company to accelerate many activities that would otherwise
14 occur over a longer time frame. By accelerating these investments through the
15 SIP, the Company will be better positioned to comply with expected regulations
16 and establish a more resilient system ahead of future natural disasters. And,
17 most importantly, by accelerating these activities the Company will have a safer
18 and more reliable system to serve its customers today.

19 **FORECASTED SIP ACTIVITIES**

20 **Q. Please describe the activities that the Company intends to undertake as**
21 **part of an extension of the SIP.**

22 A. The following table sets forth the 12 specific activities, and their projected costs,
23 that were forecast to occur during the three year extension period. This table
24 was attached to NW Natural's October 2014 filing as a work paper.

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TABLE 1: 3 Year SIP Extension Forecast

	2015	2016	2017
1 Bare Steel	\$3,040,520	\$0	\$0
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P31 McMinnville 6"			\$1,800,000
12 Class 4 Emergency Response	\$100,000	\$250,000	\$500,000
	\$8,814,411	\$8,318,597	\$9,267,513

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4 In my testimony below, I will describe the more significant activities that the
 5 Company intends to undertake during the extension period.

6 **Q. Are all of the activities included in the three year forecast also included in**
 7 **the Company's TIMP and DIMP that has been provided to Staff?**

8 A. Yes, with the exception of the "Class 4 Emergency Response" activities.

1 **Q. Please describe the Bare Steel Program activities.**

2 A. As part of the extended SIP, the Company intended to conclude its accelerated
3 replacement of bare steel pipes. As shown in the forecast, the Company
4 expected to and has in fact completed this work in 2015.

5 **Q. Please describe the ASV/RCV activities.**

6 A. ASV/RCV refers to “Automated Shutoff Valve” and “Remote Control Valve”.
7 Installation of this capability allows an operator to remotely isolate portions of the
8 Company’s system when damage occurs to the pipeline system, such as
9 damage resulting from landslides, seismic activity, or third-parties. Without these
10 devices, the Company is required to dispatch field personnel to manually shut off
11 portions of its system, which can result in delay in emergency situations—and
12 potential harm to customers and the public in general. The evaluation and
13 selective installation of ASVs and RCVs is described in current federal
14 regulations as a preventive and mitigative measure, specifically for high
15 consequence areas. The installation of ASVs and RCVs is also recommended
16 by the National Transportation Safety Board following the tragic events in San
17 Bruno, California. The Company intends to proceed with the evaluation and
18 installation of these devices to protect high consequence areas throughout its
19 system, as a preventative measure intended to comply with federal regulations.

20 **Q. Please describe the activities labeled “Inserted Steel” and “Ineffective
21 Coating.”**

22 A. Both these activities involve replacing pipe susceptible to corrosion leaks
23 (failures). The “Inserted Steel” activity involves replacement of steel pipe that
24 was placed inside the older pipe—a replacement strategy that was used years
25 ago. This approach carries an elevated risk of corrosion because the inserted
26 pipe cannot be cathodically-protected.

1 The “Ineffective Coating” entry refers to pipeline that is being replaced
2 because the older exterior coating is insufficiently protecting the pipe from
3 corrosion.

4 **Q. Are both these replacement activities required by law?**

5 A. Not explicitly. Federal regulations require the reactive spot repair and
6 replacement of pipelines showing signs of significant corrosion. The DIMP,
7 however, reflects a more proactive approach and we have therefore identified
8 this pipeline replacement as an important preventative measure to avoid the
9 safety and reliability issues that could occur if we wait for the pipeline to fail.

10 **Q. Please describe the “Natural Forces” activities.**

11 A. As the name implies, this involves activities necessitated by the potential for and
12 consequences of natural events, such as landslides, earthquakes, and washouts.
13 The forecasted activities included in the SIP are both reactive and proactive.
14 Reactive measures are undertaken once a natural event has either occurred or
15 increased in probability and consequence. This could mean relocating or
16 removing from service a segment of pipe from an area where the potential for a
17 landslide has greatly increased. Proactive measures are intended to better
18 prepare our system to withstand a natural forces event, or provide more rapid
19 isolation capability. Examples of this could entail the reinforcement of
20 surrounding soils near waterway crossings or the installation of ACVs and RCVs
21 in lines passing through high consequence areas. These activities are included
22 in both the TIMP and DIMP.

23 **Q. Will the Company’s work in this area also advance any other state policies?**

1 A. Yes. The Company's efforts to better prepare its system for potential seismic
2 activity is directly consistent with the Oregon Resilience Plan.¹

3 **Q. What is the Oregon Resilience Plan?**

4 A. In 2011, the legislature directed the Oregon Seismic Safety Policy Advisory
5 Commission (OSSPAC) to lead the preparation of an Oregon Resilience Plan
6 that would make recommendations on policy direction to protect lives and keep
7 commerce flowing during and after a Cascadia earthquake and tsunami.
8 To develop the plan, OSSPAC assembled a broad array of experts from
9 government (including the Commission), universities, the private sector, and the
10 general public.

11 The final Resilience Plan, which was submitted to the legislature in
12 February 2013, includes recommendations that Oregon act now on a sustained
13 program, including capital investment, new incentives, and policy changes,
14 intended to reduce the state's vulnerability and shorten the recovery time before
15 the next Cascadia earthquake.

16 As relevant here, the plan calls for state agencies to craft a package of
17 incentives to engage Oregon's private sector in efforts to advance seismic
18 resilience. The Commission is specifically directed to provide oversight for
19 seismic preparedness of the energy providers currently under its jurisdiction.

20 **Q. Please describe the "MAOP" activity.**

21 A. "MAOP" refers to a pipeline's Maximum Allowable Operating Pressure and this
22 activity involves verifying the MAOP of the Company's pipelines. Following the
23 San Bruno disaster, where it was discovered that PG&E was unable to verify the
24 MAOP of its pipelines, Staff directed NW Natural to verify the MAOP for all of its

¹ The plan is available online at the following website:
http://www.oregon.gov/OMD/OEM/osspace/docs/Oregon_Resilience_Plan_Final.pdf

1 transmission pipelines. NW Natural could do this either by producing the
2 pipeline's pressure test records or, if there were no records, through a new
3 pressure test. In some cases, NW Natural lacked MAOP records for small
4 sections of a pipeline and for those sections it was more cost effective to simply
5 replace the pipeline rather than conducting expensive and disruptive pressure
6 testing. Thus, this activity involves accelerated replacement of sections of
7 pipeline where the MAOP could not be verified.

8 **Q. Please describe the "Future ILI" activity.**

9 A. "ILI" stands for "In-Line Inspection" and involves inserting a mechanical device—
10 commonly known as a "smart pig"²—into the pipeline; the pig then electronically
11 inspects the pipeline as it travels through it. First, however, the pipeline needs to
12 be made "piggable," which requires making capital investments to, *e.g.*, remove
13 sharp bends, install the necessary valves, and add entry and exit points for the
14 pig. Like many of its other SIP activities, the Company intends to selectively
15 increase the use of ILI for inspecting transmission lines in high consequence
16 areas.

17 **Q. Why is the Company pursuing greater ability for ILI?**

18 A. ILI is the most effective method for inspecting a pipeline and ensuring safe and
19 reliable service. By way of background, there are three ways to assess a
20 pipeline for defects per PHMSA's TIMP requirements. First, the operator can
21 conduct a pressure test, which involves filling the pipeline with pressurized water
22 to verify its integrity. This method often requires that the pipeline be taken out of
23 service for several days or more and, as a result, is a less desirable option due to
24 its potential impact on customers. This method discovers defects by causing the

² The inspection device is called a pig because it causes an audible squealing sound as it travels through the pipe.

1 pipeline to fail at the point of the defect. This increases the amount of time the
2 pipeline is out of service.

3 Second, the operator can conduct an external corrosion direct
4 assessment, or "ECDA," which involves the application of electric current to the
5 pipeline. This assessment can be performed while the pipe is in service. ECDA
6 infers the location of defects through a complex analysis of multiple data sets that
7 is validated with several excavations and examinations of the pipeline.

8 Third, the operator can conduct an ILI, which is superior both in terms of
9 cost and effectiveness. ILI assesses the entire pipeline segment and identifies
10 the exact location of defects. Under our SIP, we are moving selected
11 transmission line segments from ECDA to ILI, which requires the capital
12 investments described above to facilitate the pig. ILI is more cost effective on a
13 per mile basis than ECDA or pressure testing on subsequent required
14 reassessments.

15 **Q. Is ILI required by a statute or regulation?**

16 A. No. However, it has been demonstrated and is recognized by industry and
17 federal regulators that ILI is a more accurate and robust method for conducting
18 pipeline inspections. This has been proven during our own inspection process,
19 where anomalies have been identified by ILI in lines that were previously
20 inspected by ECDA. While there is no perfect inspection technology, ILI has
21 been demonstrated to be the most effective in detecting a wide range of
22 anomalies.

23 **Q. Does this conclude your opening testimony?**

24 A. Yes.