



CITY OF  
**PORTLAND, OREGON**  
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June 14, 2013

Public Utililty Commission of Oregon  
550 Capitol St NE #215  
PO Box 2148  
Salem, OR 97308-2148

Re: **Docket No. UE 262** – In the Matter of Portland General Electric  
Company, Request for a General Rate Revision

Dear Filing Center:

Enclosed for filing is an original and five copies of the Direct Testimony of Anne Falcon (and Exhibits), Richard Gray (and Exhibits) and David Tooze.

Copies have been served electronically on all parties to this proceeding in the above-referenced docket.

Sincerely,

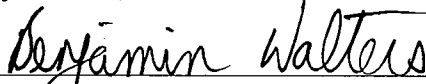
Benjamin E. Walters  
Chief Deputy City Attorney

BW:lw  
Enclosures

## **CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that I have this day served the foregoing Direct Testimony of Anne Falcon, Richard Gray and David Tooze, on behalf of the City of Portland upon the parties on the attached service list by causing the same to be sent via electronic mail.

Dated at Portland, Oregon, this 14<sup>th</sup> day of June, 2013.

  
\_\_\_\_\_  
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**BEFORE THE PUBLIC UTILITY COMMISSION  
OF THE STATE OF OREGON**

**UE 262**

**CITY OF PORTLAND**

Direct Testimony of:

Anne Falcon

June 14, 2013

1 **Q. PLEASE STATE YOUR NAME, ADDRESS AND POSITION.**

2 A. My name is Anne Falcon. I am a Managing Director of Management Services for EES  
3 Consulting. My business address is 570 Kirkland Way, Suite 100, Kirkland WA 98033.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY ON BEHALF OF THE CITY**  
5 **OF PORTLAND?**

6 A. The purpose of my testimony is to comment on the proposed rate calculation for  
7 Schedules 91 and 95. As part of UE 215 OPUC Order No. 10-478 PGE/City of Portland  
8 Stipulation, PGE has made several changes to the calculation of the rates for Schedules  
9 91 and 95. In particular, PGE eliminated the embedded circuit charge and implemented a  
10 marginal cost of service calculation for distribution costs associated with street lighting.  
11 While the City appreciates PGE's effort in this regard, there are several areas that should  
12 be further modified before rates can be fully implemented. This testimony addresses the  
13 City's recommended cost allocation changes.

14 **Q. DO YOU HAVE ANY INTRODUCTORY COMMENTS?**

15 A. Given the economic downturn, cities and other government entities are under great  
16 pressure to control costs and ensure that they receive maximum value for their expenses.  
17 As described in UE 262/COP/200/Gray, along with other Oregon local governments, the  
18 City of Portland has experienced significant fiscal challenges in the last year.  
19 It is also important to recognize that although the increased cost of schedules 91 and 95  
20 will be passed through to the residents and businesses of the City primarily through taxes,  
21 these PGE customers will also experience rate increases in their own electricity bills. The  
22 City is concerned with the requested overall increase and the impact on the communities  
23 served by PGE. The City encourages PGE to continue efforts to improve efficiency and  
24 establish cost control measures to minimize this and future rate increases. As Mr. Gray  
25 notes in COP/200/Gray, the City pays for PGE service on over 44,000 street lights. In  
26



1 addition the City maintains over 11,000 of its own streetlights. In total, the City pays  
2 over \$5 million in rate revenues to PGE for street lighting alone.

3 **Q. PLEASE DESCRIBE PGE'S METHOD FOR CHARGING STREETLIGHTING.**

4 A. There are three options for pole and luminaire ownership in PGE's street lighting rate  
5 schedules. Each option is billed differently depending on the services required from  
6 PGE. For option A poles and luminaires, PGE owns and maintains the poles and  
7 luminaires. Under option B, the poles and luminaires are customer owned, but PGE  
8 maintains these assets. Finally, Option C poles and luminaires are owned and maintained  
by the street lighting customer.

9 PGE charges a rental fee for option A poles and luminaires and a maintenance fee for  
10 option A and B poles and luminaires. In addition, a kWh energy charge is assessed on  
11 option A, B and C luminaires based on a fixed kWh per month. This kWh energy charge  
12 is composed of three components: power supply, transmission and distribution. Because  
13 of the complexity in ownership options, it is important to ensure that each charge is based  
14 on the appropriate cost of service provided. For example, Option C poles and luminaires  
15 (customer owned) should not be charged for any PGE costs associated with O&M  
associated with owning or maintaining poles or luminaires.

16 **Q. PLEASE DESCRIBE PGE'S CALCULATION OF MARGINAL DISTRIBUTION**  
17 **COST TO SCHEDULES 91 AND 95.**

18 A. PGE separates distribution marginal costs into Distribution Services and Customer  
19 Services. See, "Ratespread14GRC.xlsx" tab "MargCost", attached as COP Exhibit 101.  
20 PGE has generally calculated the distribution marginal costs for Schedules 91 and 95  
21 using the same methodology as is used for all other rate schedules. For Distribution  
22 Services, Schedules 91 and 95 are allocated costs for subtransmission, substations, feeder  
23 backbone, feeders, taplines, services and transformers similar to other rate classes. In  
24 addition Schedules 91 and 95 are assigned costs for consumer services (Lights). For  
25 Customer Service, Schedules 91 and 95 are allocated costs for billing and other customer  
26 costs. Schedules 91 and 95 are not allocated any metering or uncollectibles costs.

1 **Q. DOES THE CITY HAVE ANY CONCERNS WITH PGE'S CALCULATION OF**  
2 **MARGINAL DISTRIBUTION COST?**

3 A. Yes. The City has two main concerns with the calculation of marginal distribution costs.  
4 First, Schedules 15, 91 and 95 are directly assigned "Lighting additional O&M" in  
5 addition to paying a share of all other distribution costs. Second, the customer costs  
6 associated with Schedule 91 and 95 appear over-estimated.

7 **Q. PLEASE DESCRIBE THE CITY'S CONCERN WITH THE FIRST EXPENSE,**  
8 **"LIGHTING ADDITIONAL O&M".**

9 A. In the calculation of distribution costs, PGE includes a \$3.39 per luminaire charge for  
10 distribution customer service. In the response to the City's Data Request 23, PGE  
11 described the costs as including "labor related to providing street and area lighting  
12 services". PGE's Response to COP DR 23 is attached as COP Exhibit 102. No other  
13 supporting information was provided by PGE, except PGE stated that this charge has  
14 been included in the compliance filings for the last four rate cases. Id. PGE's method of  
15 calculation marginal costs results in Schedule 15, 91 and 95 paying \$773,000 for these  
16 unspecified services. See, for example, "Ratespread14GRC.xlsx" tab "Dist", attached as  
17 COP Exhibit 103. Meanwhile, PGE identified the actual RC 313 Test Period O&M as  
18 \$607,047. See, "Ratespread14GRC.xlsx" tab "misc-usages", attached as COP Exhibit  
19 104.

20 As described above, the street lighting class is now allocated distribution costs and  
21 associated operations and maintenance costs, including labor, based on actual usage of  
22 the system in a similar manner to all other rate payers. In addition, as described in further  
23 detail below, Schedules 91 and 95 are also directly assigned both billing and other  
24 customer service costs. PGE has not provided any justification for singling out the street  
25 lighting classes and charging additional distribution O&M. These O&M costs should be  
26

1 allocated to all customer classes as general distribution costs and be removed as a direct  
2 assignment, as Schedules 91 and 95 are already allocated the full cost of distribution-  
3 related services based on the marginal cost of providing services to these customers.

4 **Q. COULD YOU PLEASE DESCRIBE THE ISSUES WITH THE MARGINAL**  
5 **CUSTOMER COST CALCULATION?**

6 A. In comparison to other rate classes, PGE's marginal cost analysis allocates a large amount  
7 for billing to Schedules 91, 92 and 95. Based on this analysis, PGE in this rate filing  
8 allocates \$256.21 in billing related costs per customer per year to Schedules 91, 92 and 95  
9 customers, an increase of 38 percent over 2011. In comparison, a residential customer is  
10 allocated \$30.44 per year for billing related services. Other than Schedules 91, 92 and 95,  
11 the next highest billing unit cost is Schedule 83 which is allocated \$52.40 per customer  
12 per year in billing related costs. See, "2014 Marginal Customer Cost.xlsx" tab "Billing  
13 2014," attached as COP Exhibit 105. The high billing related cost is associated with  
14 account CIS Billing. PGE calculates the marginal billing costs based on hours spent on  
15 billing the lighting customers. See, "2014 Marginal Customer Cost.xlsx" tab "STL",  
16 attached as COP Exhibit 106. According to this workpaper, it takes over 70 hours per  
17 month to bill 222 street lighting customer accounts.

18  
19 As explained by Mr. Gray in COP/200/Gray, there is no metered data or complicated  
20 rates for PGE to process when billing Schedule 91, 92 and 95 customers. PGE has  
21 offered no support for why it takes PGE almost five times longer to bill a street lighting  
22 customer each month compared to a Schedule 83 customers, or 8 times longer than the  
23 typical billing time identified for residential customers.

24 While the City agrees that the appropriate cost of billing should be paid by Schedule 91,  
25 95 and 92 customers, the billing costs become exaggerated as the direct assignment is  
26

1 also used to allocate other billing costs. Finally, the marginal billing costs are further  
2 inflated due to the gross-up process used to match the overall billing revenue  
3 requirement. See, “2014 Marginal Customer Cost.xlsx” tab “2014 Exhibit”, attached as  
4 COP Exhibit 107. The City would like to work with PGE to minimize the cost of billing  
5 going forward to ensure this service is cost effective and applicable to all Option A, B and  
6 C lights.

7 **Q. DOES PGE ALLOCATE ANY ADDITIONAL CUSTOMER COSTS TO**  
8 **SCHEDULE 91/95?**

9 A. Yes. PGE also allocates “Other services” costs to Schedules 91 and 95, most of which is  
10 related to the account titled “Business customer/key customer group”. The allocation of  
11 costs for this account has not changed, however the actual costs have increased by almost  
12 60 percent since 2011. Thus the other customer costs allocated to Schedules 91 and 95  
13 have also increased by almost 60 percent. The City would appreciate working with PGE  
14 to ensure the services provided under “Other services” are cost effective and  
15 appropriately applied to all option A, B and C lights.

16  
17 **Q. DOES THE CITY HAVE ANY ADDITIONAL CONCERNS WITH PGE’S**  
18 **CALCULATION OF RENTAL RATES?**

19 A. Yes. The City wants to ensure that the approved rate of return will be applied to the pole  
20 and luminaire rental rates as well.

21 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

22 A. The City of Portland has a responsibility to protect the interests of its taxpayers and  
23 residents. As part of that responsibility the City is committed to reducing costs wherever  
24 feasible. This includes ensuring that costs paid to vendors such as PGE are reasonable  
25 and fair. Based on the prior UE 215 stipulation, Schedules 91 and 95 are allocated  
26 distribution costs in the same manner as all other customers. However, PGE directly

1 assigns distribution O&M and customer costs in addition to cost shared among all other  
2 rate payers. The City strongly recommends that PGE make the following updates in the  
3 proposed rate schedules:

- 4 • Remove direct assignment of "Lighting O&M" from the distribution rate and allocate  
5 this expense to all customers.
- 6 • Provide a costing analysis of the Billing and Other Services that are directly assigned  
7 to the lighting class so the City can determine that the services provided by PGE are  
8 cost effective.
- 9 • Use the approved rate of return for the calculation of rental rates for poles and  
10 luminaires.

11  
12 **Q. MS. FALCON, PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND**  
13 **QUALIFICATIONS.**

14 A. I received a Bachelor of Arts degree in Economics from the University of San Francisco,  
15 and a M.S. in Operations Research from Stanford University. I have worked for EES  
16 Consulting for the past 20 years as an analyst, project manager and currently as a  
17 Managing Director. As part of my duties, I manage projects concerning cost of service  
18 and rate analyses, financial planning and regulatory proceedings for electric, natural gas,  
19 water and wastewater utilities.

20 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

21 A. Yes.  
22  
23  
24  
25  
26

PORTLAND GENERAL ELECTRIC  
MARGINAL COSTS FOR DISTRIBUTION & CONSUMER SERVICES

DISTRIBUTION SERVICES											
Grouping	Sub-transmission (\$ per kW)	Sub-station (\$ per kW)	Feeder Backbone By Consumer Type (\$ per kW)		Feeder Local Facilities By Consumer Type (\$ per kW)		Service & Trans. By Consumer Type (\$ per Cust)		Meters By Consumer Type (\$ per Consumer)		Con-sumer Service (Lights)
			Single-Phase	Three-Phase	Single-Phase	Three-Phase	Single-Phase	Three-Phase	Single-Phase	Three-Phase	
SCH 7 Residential	\$10.99	\$10.12	\$24.23	\$24.23	\$17.10	\$17.10	\$82.61	\$147.47	\$20.19	\$55.45	
SCH 15 Outdoor Area Lighting Residential	\$10.99	\$10.12	\$25.26	N/A	\$17.81		\$8.66	N/A	N/A	N/A	\$3.39
	\$10.99	\$10.12	\$25.26	N/A	\$17.81		\$8.66	N/A	N/A	N/A	\$3.39
SCH 32 General Service <30 kW	\$10.99	\$10.12	\$28.14	\$28.14	\$24.77	\$9.44	\$123.07	\$264.80	\$19.37	\$68.38	
SCH 38 Opt TOD G.S. > 30 kW	\$10.99	\$10.12	\$33.47	\$33.47	\$20.26	\$13.09	\$195.06	\$527.62	\$57.76	\$82.42	
SCH 47 Irrig. & Drain. Pump < 30 kW	\$10.99	\$10.12	\$70.23	\$70.23	\$52.32	\$27.08	\$9.70	\$25.26	\$53.83	\$81.81	
SCH 49 Irrig. & Drain. Pump > 30 kW	\$10.99	\$10.12	\$71.65	\$71.65	\$44.06	\$27.46	\$27.36	\$132.97	\$57.76	\$99.76	
SCH 83 Secondary	\$10.99	\$10.12	\$24.68	\$24.68	\$20.63	\$9.00	\$426.41	\$1,093.60	\$46.44	\$108.37	
SCH 85 Secondary Primary	\$10.99	\$10.12		\$21.13		\$7.00	N/A	\$1,732.11	N/A	\$151.34	
	\$10.99	\$10.12		\$21.13		\$7.00		\$727.44	N/A	\$1,382.27	
SCH 89 1.4 MW Secondary Primary	\$10.99	\$10.12		\$21.14		\$4.66		\$4,581.85	N/A	\$164.19	
	\$10.99	\$10.12		\$21.14		\$4.66		\$867.23	N/A	\$1,382.27	
SCH 89 GT 4 MW Secondary Primary Subtransmission	\$10.99	\$10.12		\$73,144.00		N/A		\$11,054.47	N/A	\$164.19	
	\$10.99	\$10.12		\$73,144.00		N/A		\$2,548.39	N/A	\$1,382.27	
	\$10.99	N/A		\$83,464.00		N/A		N/A	N/A	\$16,556.61	
SCH 91 & 95 Street & Highway Light	\$10.99	\$10.12	\$25.26	N/A	\$17.81		\$5.01	N/A	N/A	N/A	\$3.39
SCH 92 Traffic Signals	\$10.99	\$10.12		\$25.26		\$9.09	\$12.09	N/A	N/A	N/A	
SCH 93 Rec Field Lighting	\$10.99	\$10.12		\$25.26		\$9.09	N/A	\$72.37	N/A	\$1,296.40	

Grouping	CONSUMER SERVICES							
	Metering			Billing			Other	
	By Consumer Type (\$ per Cons/Light)			By Consumer Type (\$ per Cons/Light)			By Consumer Type (\$ per Cons/Light)	
	Single-Phase	Three-Phase	Phase	Single-Phase	Three-Phase	Phase	Single-Phase	Three-Phase
SCH 7 Residential	\$0.45	\$0.45		\$51.80	\$51.80		\$20.17	\$20.17
SCH 15 Outdoor Area Lighting Residential	\$0.00	N/A		\$40.24	N/A		\$20.16	N/A
Commercial	\$0.00	N/A		\$63.54	N/A		\$36.63	N/A
SCH 32 General Service <30 kW	\$1.01	\$1.01		\$68.21	\$68.21		\$46.31	\$46.31
SCH 38 Opt TOD G.S. > 30 kW	\$12.96	\$12.96		\$43.06	\$43.06		\$50.52	\$50.52
SCH 47 Irrig. & Drain. Pump < 30 kW	\$0.93	\$0.93		\$65.81	\$65.81		\$38.47	\$38.47
SCH 49 Irrig. & Drain. Pump > 30 kW	\$1.50	\$1.50		\$77.18	\$77.18		\$41.25	\$41.25
SCH 83 Secondary	\$5.06	\$5.06		\$89.18	\$89.18		\$83.99	\$83.99
SCH 85 Secondary Primary	\$10.72	\$10.72		\$43.29	\$43.29		\$824.75	\$824.75
SCH 89 1-4 MW Secondary Primary	N/A	\$7.65		N/A	\$43.52		N/A	\$3,554.04
SCH 89 GT 4 MW Secondary Primary Subtransmission	N/A	\$0.00		N/A	\$43.13		N/A	\$41,182.48
SCH 91 & 95 Street & Highway Light	\$0.00	N/A		\$436.03	N/A		\$334.22	N/A
SCH 92 Traffic Signals	\$0.00	N/A		\$436.03	N/A		N/A	\$188.87
SCH 93 Rec Field Lighting	N/A	\$9.49		N/A	\$63.96		N/A	\$101.58

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May 31, 2013

TO: Benjamin Walters  
City of Portland

David Tooze  
City of Portland

FROM: Patrick Hager  
Manager, Regulatory Affairs

**PORTLAND GENERAL ELECTRIC  
UE 262  
PGE Response to City of Portland Data Request  
Dated May 17, 2013  
Question No. 023**

**Request:**

**Please provide an explanation of Lighting Additional O&M section & RC313 Test period section in tab "misc-usages" in spreadsheet "Ratespread 14GRC.xlsx". How is this information used in the COSA and rate design? What does the additional O&M costs account for?**

**Response:**

The O&M referenced above is added to the distribution costs for Schedules 15, 91, and 95 and charged on a cents/kWh basis. It includes labor related to providing street and area light services. The amounts included in the compliance filings for the last four rate cases is provided below, as well as the proposed amount included in UE 262.

UE 115 (2002) - \$9.40 per light per year. See Attachment 023-A.  
UE 180 (2007) - \$7.67 per light per year. See Attachment 023-B.  
UE 197 (2009) - \$4.68 per light per year. See Attachment 023-C.  
UE 215 (2011) - \$4.23 per light per year. See Attachment 023-D.

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**UE 262**

**Attachment 023-A**

**Provided in Electronic Format only**

Page 18 from PGE's UE 115 Compliance Filing

**PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION SERVICE COSTS  
2002**

Grouping		Usages	Units & Basis	Marginal Unit Cost	Costs (\$000)	
					Study	Equal Percentage
SCH 91 - Street & Highway Lighting (formerly Schedule 91)						
DEMAND	Subtransmission	8,958	kW, 12 CP	\$12.29	\$110	\$125
	Substation	21,500	kW, rateclass pk	\$13.17	\$283	<u>\$322</u>
	Subtotal					<u>\$447</u>
FACILITIES	Wire	21,500	kW, rateclass pk	\$21.51	\$462	\$526
	Transformers	21,500	kW, rateclass pk	\$3.21	\$69	\$78
	Subtotal					<u>\$604</u>
CUSTOMER	Service Drops	18,032	Panels	N/A		\$0
	Meters & CIS	586	Customers	\$1.46	\$1	\$1
	Customer Service	135,238	Lights	\$9.40	\$1,271	\$1,445
	Subtotal					<u>\$1,446</u>
FIXED	Luminaires & Poles					<u>\$6,297</u>
SUBTOTAL					\$926	<u>\$8,793</u>
SCH 92 - Traffic Signals (formerly Schedule 92)						
DEMAND	Subtransmission	1,500	kW, 12 CP	\$12.29	\$18	\$21
	Substation	1,500	kW, rateclass pk	\$13.17	\$20	<u>\$22</u>
	Subtotal					<u>\$43</u>
FACILITIES	Wire	1,500	kW, rateclass pk	\$16.38	\$25	\$28
	Transformers	1,500	kW, rateclass pk	\$3.21	\$5	<u>\$5</u>
	Subtotal					<u>\$33</u>
CUSTOMER	Service Drops	1,831	Service Drops	\$18.81	\$34	\$39
	Meters & CIS	25	Customers	\$1.46	\$0	\$0
	Subtotal					<u>\$39</u>
SUBTOTAL					\$102	<u>\$116</u>
SCH 93 - Recreational Field Lighting (formerly Schedule 93)						
DEMAND	Subtransmission	108	kW, 12 CP	\$12.29	\$1	\$2
	Substation	700	kW, rateclass pk	\$13.17	\$9	<u>\$10</u>
	Subtotal					<u>\$12</u>
FACILITIES	Wire	700	kW, rateclass pk	\$9.66	\$7	\$8
CUSTOMER	Service Drops	31	Customers	\$153.00	\$5	\$5
	Meters & CIS	31	Customers	\$1,577.12	<u>\$49</u>	<u>\$56</u>
	Subtotal					<u>\$61</u>
SUBTOTAL					\$71	<u>\$81</u>
SCH 97 - Drainage Districts (formerly Schedule 97)						
DEMAND	Subtransmission	208	kW, 12 CP	\$12.29	\$3	\$3
	Substation	1,000	kW, rateclass pk	\$13.17	\$13	<u>\$15</u>
	Subtotal					<u>\$18</u>
FACILITIES	Wire	1,000	kW, rateclass pk	\$9.66	\$10	\$11
CUSTOMER	Service Drops	2	Customers	\$2,234.65	\$4	\$5
	Meters & CIS	2	Customers	\$2,933.03	<u>\$6</u>	<u>\$7</u>
	Subtotal					<u>\$12</u>
SUBTOTAL					\$36	<u>\$41</u>

**UE 262**

**Attachment 023-B**

**Provided in Electronic Format only**

Page 61 of Attachment B from PGE's UE 180 Compliance Filing

**PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2007**

Grouping	Usages	Units & Bases	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 89 General Service (4,000 plus kW)</b>					
CUSTOMER	Secondary Meters	2 Customers	\$172.89	\$0	\$0
	Primary Meters	21 Customers	\$1,351.81	\$28	\$28
	Substation Meters	9 Customers	\$21,214.80	\$191	\$187
FACILITIES	13 kV (Sec. & Prim. Only)	23 Customers	\$42,841.17	\$985	\$966
	Secondary Connect Costs	2 Customers	\$20,823.37	\$42	\$41
	Primary Connect Costs	21 Customers	\$3,068.13	\$64	\$63
	Subtransmission Connect Costs	9 Customers	\$56,755.02	\$511	\$501
DEMAND	Subtransmission	413,337 kW, rateclass peak	\$13.88	\$5,737	\$5,626
	Substation (Sec. & Prim. Only)	246,301 kW, rateclass peak	\$14.43	\$3,554	\$3,485
SUBTOTAL				\$11,113	\$10,898
<b>Schedule 91 Streetlighting &amp; Highway Lighting</b>					
CUSTOMER	Customer Service	143,816 Lights	\$7.67	\$1,103	\$1,082
FACILITIES	13 kV	26,745 kW, rateclass peak	\$27.70	\$741	\$726
	Connect Costs (transformer only)	143,816 Lights	\$0.92	\$132	\$130
DEMAND	Subtransmission	26,745 kW, rateclass peak	\$13.88	\$371	\$364
	Substation	26,745 kW, rateclass peak	\$14.43	\$386	\$378
FIXED	Luminaires & Poles				\$7,636
SUBTOTAL				\$2,733	\$10,316
<b>Schedule 92 Traffic Signals</b>					
FACILITIES	13 kV	711 kW, rateclass peak	\$19.43	\$14	\$14
	Connect Costs	1,560 Intersections	\$27.20	\$42	\$42
DEMAND	Subtransmission	711 kW, rateclass peak	\$13.88	\$10	\$10
	Substation	711 kW, rateclass peak	\$14.43	\$10	\$10
SUBTOTAL				\$76	\$75
<b>Schedule 93 Stadium Lighting</b>					
CUSTOMER	Meters	27 Customers	\$1,305.56	\$35	\$35
FACILITIES	13 kV	351 kW, rateclass peak	\$19.43	\$7	\$7
	Connect Costs	27 Customers	\$148.99	\$4	\$4
DEMAND	Subtransmission	351 kW, rateclass peak	\$13.88	\$5	\$5
	Substation	351 kW, rateclass peak	\$14.43	\$5	\$5
SUBTOTAL				\$56	\$55

**UE 262**

**Attachment 023-C**

**Provided in Electronic Format only**

Page 66 of Attachment B from PGE's UE 197 Compliance Filing

PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2009

Grouping		Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 89 General Service (4,000 plus kW)</b>						
CUSTOMER	Secondary Meters	2	Customers	\$181.72	\$0	\$0
	Primary Meters	30	Customers	\$1,117.95	\$34	\$30
	Substation Meters	10	Customers	\$24,784.56	\$248	\$218
FACILITIES	13 kV (Sec. & Prim. Only)	32	Customers	\$46,883.00	\$1,500	\$1,321
	Secondary Connect Costs	2	Customers	\$33,743.42	\$67	\$59
	Primary Connect Costs	30	Customers	\$3,806.65	\$114	\$101
	Subtransmission Connect Costs	10	Customers	\$74,728.85	\$747	\$658
DEMAND	Subtransmission	532,158	kW, rateclass peak	\$11.49	\$6,114	\$5,383
	Substation (Sec. & Prim. Only)	294,908	kW, rateclass peak	\$17.15	\$5,058	\$4,453
SUBTOTAL					\$13,883	\$12,223
<b>Schedule 91 Streetlighting &amp; Highway Lighting</b>						
CUSTOMER	Customer Service	149,427	Lights	\$4.68	\$699	\$615
FACILITIES	13 kV	27,734	kW, rateclass peak	\$31.03	\$861	\$758
	Connect Costs (transformer only)	149,427	Lights	\$1.40	\$209	\$184
DEMAND	Subtransmission	27,734	kW, rateclass peak	\$11.49	\$319	\$281
	Substation	27,734	kW, rateclass peak	\$17.15	\$476	\$419
FIXED	Luminaires & Poles					\$7,858
SUBTOTAL					\$2,563	\$10,114
<b>Schedules 92 &amp; 94 Traffic Signals &amp; Communications Devices</b>						
FACILITIES	13 kV	619	kW, rateclass peak	\$22.02	\$14	\$12
	Connect Costs	1,616	Intersections	\$22.15	\$36	\$32
DEMAND	Subtransmission	619	kW, rateclass peak	\$11.49	\$7	\$6
	Substation	619	kW, rateclass peak	\$17.15	\$11	\$9
SUBTOTAL					\$67	\$59
<b>Schedule 93 Stadium Lighting</b>						
CUSTOMER	Meters	24	Customers	\$1,678.67	\$40	\$35
FACILITIES	13 kV	243	kW, rateclass peak	\$22.02	\$5	\$5
	Connect Costs	24	Customers	\$155.95	\$4	\$3
DEMAND	Subtransmission	243	kW, rateclass peak	\$11.49	\$3	\$2
	Substation	243	kW, rateclass peak	\$17.15	\$4	\$4
SUBTOTAL					\$56	\$50

**UE 262**

**Attachment 023-D**

**Provided in Electronic Format only**

Page 61 of Attachment B from PGE's UE 215 Compliance Filing

**PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2011**

Grouping	Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 89 General Service (1,001-4,000 kW)</b>					
CUSTOMER Meters					
	Secondary Meters	92 Customers	\$138.16	\$13	\$14
	Primary Meters	90 Customers	\$739.95	\$67	\$71
	Service & Transformer				
	Secondary Customers	92 Customers	\$4,594.87	\$423	\$449
	Primary Customers	90 Customers	\$869.70	\$79	\$84
FACILITIES	Feeder Backbone	221,354 kW, rateclass peak	\$19.22	\$4,254	\$4,522
	Feeder Local Facilities	295,150 Design Demand	\$4.74	\$1,399	\$1,487
DEMAND	Subtransmission	224,254 kW, rateclass peak	\$9.68	\$2,171	\$2,307
	Substation	221,354 kW, rateclass peak	\$13.17	\$2,915	\$3,098
SUBTOTAL				\$11,320	\$12,032
<b>Schedule 89 General Service (4,000 plus kW)</b>					
CUSTOMER Meters					
	Secondary Meters	2 Customers	\$138.16	\$0	\$0
	Primary Meters	31 Customers	\$739.95	\$23	\$24
	Substation Meters	10 Customers	\$13,800.01	\$138	\$147
	Service & Transformer				
	Secondary Customers	2 Customers	\$24,515.53	\$49	\$52
	Primary Customers	31 Customers	\$2,555.63	\$79	\$84
FACILITIES	Feeder Backbone				
	Secondary Customers	2 Customers	\$68,998.00	\$138	\$147
	Primary Customers	31 Customers	\$68,998.00	\$2,139	\$2,273
	Subtransmission 115 kV Feeder	10 Customers	\$78,156.00	\$782	\$831
DEMAND	Subtransmission	381,708 kW, rateclass peak	\$9.68	\$3,695	\$3,927
	Substation (Sec. & Prim. Only)	280,655 kW, rateclass peak	\$13.17	\$3,696	\$3,929
SUBTOTAL				\$10,739	\$11,414
<b>Schedule 91 Streetlighting &amp; Highway Lighting</b>					
CUSTOMER	Customer Service	154,236 Lights	\$4.23	\$653	\$694
	Transformers	154,236 Lights	\$0.96	\$148	\$157
FACILITIES	Feeder Backbone	28,460 kW, rateclass peak	\$23.48	\$668	\$710
	Feeder Local Facilities	28,460 Design Demand	\$16.74	\$476	\$506
DEMAND	Subtransmission	28,833 kW, rateclass peak	\$9.68	\$279	\$297
	Substation	28,460 kW, rateclass peak	\$13.17	\$375	\$398
FIXED	Luminaires & Poles				\$8,159
SUBTOTAL				\$2,600	\$10,922



PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2014

Grouping	Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 7 Residential</b>					
CUSTOMER	Meters				
	Single-Phase Customers	733,968 Customers	\$20.19	\$14,819	\$18,878
	Three-Phase Customers	82 Customers	\$55.45	\$5	\$6
	Service & Transformer				
	Single-Phase Customers	733,968 Customers	\$82.61	\$60,633	\$77,242
	Three-Phase Customers	82 Customers	\$147.47	\$12	\$15
FACILITIES	Feeder Backbone				
	Single-Phase Customers	1,984,164 kW, rateclass peak	\$24.23	\$48,076	\$61,246
	Three-Phase Customers	222 kW, rateclass peak	\$24.23	\$5	\$7
	Feeder Local Facilities				
	Single-Phase Customers	2,935,872 Design Demand	\$17.10	\$50,203	\$63,955
	Three-Phase Customers	329 Design Demand	\$17.10	\$6	\$7
DEMAND	Subtransmission	2,010,382 kW, rateclass peak	\$10.99	\$22,094	\$28,146
	Substation	1,984,387 kW, rateclass peak	\$10.12	\$20,082	\$25,583
SUBTOTAL				\$215,935	\$275,085
<b>Schedule 15 Residential Outdoor Area Lighting</b>					
CUSTOMER	Customer Service	9,513 Lights	\$3.39	\$32	\$41
	Transformer	9,513 Lights	\$8.66	\$82	\$105
FACILITIES	Feeder Backbone	1,808 kW, rateclass peak	\$25.26	\$46	\$58
	Feeder Local Facilities	1,808 Design Demand	\$17.81	\$32	\$41
DEMAND	Subtransmission	1,832 kW, rateclass peak	\$10.99	\$20	\$26
	Substation	1,808 kW, rateclass peak	\$10.12	\$18	\$23
FIXED	Luminaires & Poles				\$749
SUBTOTAL				\$231	\$1,043
<b>Schedule 15 Commercial Outdoor Area Lighting</b>					
CUSTOMER	Customer Service	11,108 Lights	\$3.39	\$38	\$48
	Transformer	11,108 Lights	\$8.66	\$96	\$123
FACILITIES	Feeder Backbone	4,270 kW, rateclass peak	\$25.26	\$108	\$137
	Feeder Local Facilities	4,270 Design Demand	\$17.81	\$76	\$97
DEMAND	Subtransmission	4,325 kW, rateclass peak	\$10.99	\$48	\$61
	Substation	4,270 kW, rateclass peak	\$10.12	\$43	\$55
FIXED	Luminaires & Poles				\$1,768
SUBTOTAL				\$408	\$2,288
<b>Schedule 15 Outdoor Area Lighting</b>					
CUSTOMER	Customer Service				\$89
	Transformer				\$227
FACILITIES	Feeder Backbone				\$196
	Feeder Local Facilities				\$138
DEMAND	Subtransmission				\$86
	Substation				\$78
FIXED	Luminaires & Poles				\$2,517
SUBTOTAL					\$3,331

PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2014

Grouping		Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 32 Small Non-residential General Service</b>						
CUSTOMER	Meters					
	Single-Phase Customers	53,942	Customers	\$19.37	\$1,045	\$1,331
	Three-Phase Customers	34,854	Customers	\$68.38	\$2,383	\$3,036
	Service & Transformer					
	Single-Phase Customers	53,942	Customers	\$123.07	\$6,639	\$8,457
	Three-Phase Customers	34,854	Customers	\$264.80	\$9,229	\$11,758
FACILITIES	Feeder Backbone					
	Single-Phase Customers	129,628	kW, rateclass peak	\$28.14	\$3,648	\$4,647
	Three-Phase Customers	189,860	kW, rateclass peak	\$28.14	\$5,343	\$6,806
	Feeder Local Facilities					
	Single-Phase Customers	269,711	Design Demand	\$24.77	\$6,681	\$8,511
	Three-Phase Customers	393,855	Design Demand	\$9.44	\$3,718	\$4,736
DEMAND	Subtransmission	323,673	kW, rateclass peak	\$10.99	\$3,557	\$4,532
	Substation	319,488	kW, rateclass peak	\$10.12	\$3,233	\$4,119
SUBTOTAL					\$45,476	\$57,933
<b>Schedule 38 General Service</b>						
CUSTOMER	Meters					
	Single-Phase Customers	38	Customers	\$57.76	\$2	\$3
	Three-Phase Customers	238	Customers	\$82.42	\$20	\$25
	Service & Transformer					
	Single-Phase Customers	38	Customers	\$195.06	\$7	\$9
	Three-Phase Customers	238	Customers	\$527.62	\$126	\$160
FACILITIES	Feeder Backbone					
	Single-Phase Customers	858	kW, rateclass peak	\$33.47	\$29	\$37
	Three-Phase Customers	12,894	kW, rateclass peak	\$33.47	\$432	\$550
	Feeder Local Facilities					
	Single-Phase Customers	1,699	Design Demand	\$20.26	\$34	\$44
	Three-Phase Customers	30,128	Design Demand	\$13.09	\$394	\$502
DEMAND	Subtransmission	13,933	kW, rateclass peak	\$10.99	\$153	\$195
	Substation	13,752	kW, rateclass peak	\$10.12	\$139	\$177
SUBTOTAL					\$1,336	\$1,702
<b>Schedule 47 Irrigation &amp; Drainage Service - &lt; 30 kW</b>						
CUSTOMER	Meters					
	Single-Phase Customers	220	Customers	\$53.83	\$12	\$15
	Three-Phase Customers	2,983	Customers	\$81.81	\$244	\$311
	Service & Transformer					
	Single-Phase Customers	220	Customers	\$9.70	\$2	\$3
	Three-Phase Customers	2,983	Customers	\$25.26	\$75	\$96
FACILITIES	Feeder Backbone					
	Single-Phase Customers	724	kW, rateclass peak	\$70.23	\$51	\$65
	Three-Phase Customers	17,569	kW, rateclass peak	\$70.23	\$1,234	\$1,572
	Feeder Local Facilities					
	Single-Phase Customers	2,200	Design Demand	\$52.32	\$115	\$147
	Three-Phase Customers	29,830	Design Demand	\$27.08	\$808	\$1,029
DEMAND	Subtransmission	18,533	kW, rateclass peak	\$10.99	\$204	\$259
	Substation	18,293	kW, rateclass peak	\$10.12	\$185	\$236
SUBTOTAL					\$2,930	\$3,732

PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2014

Grouping	Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 49 Irrigation &amp; Drainage Service - &gt; 30 kW</b>					
CUSTOMER	Meters				
	Single-Phase Customers	4 Customers	\$57.76	\$0	\$0
	Three-Phase Customers	1,292 Customers	\$99.76	\$129	\$164
	Service & Transformer				
	Single-Phase Customers	4 Customers	\$27.36	\$0	\$0
	Three-Phase Customers	1,292 Customers	\$132.97	\$172	\$219
FACILITIES	Feeder Backbone				
	Single-Phase Customers	92 kW, rateclass peak	\$71.65	\$7	\$8
	Three-Phase Customers	58,374 kW, rateclass peak	\$71.65	\$4,183	\$5,328
	Feeder Local Facilities				
	Single-Phase Customers	124 Design Demand	\$44.06	\$5	\$7
	Three-Phase Customers	74,290 Design Demand	\$27.46	\$2,040	\$2,599
DEMAND	Subtransmission	59,231 kW, rateclass peak	\$10.99	\$651	\$829
	Substation	58,466 kW, rateclass peak	\$10.12	\$592	\$754
SUBTOTAL				\$7,778	\$9,909
<b>Schedule 83 General Service (31-200 kW)</b>					
CUSTOMER	Meters				
	Single-Phase Customers	697 Customers	\$46.44	\$32	\$41
	Three-Phase Customers	10,433 Customers	\$108.37	\$1,131	\$1,440
	Service & Transformer				
	Single-Phase Customers	697 Customers	\$426.41	\$297	\$378
	Three-Phase Customers	10,433 Customers	\$1,093.60	\$11,409	\$14,534
FACILITIES	Feeder Backbone				
	Single-Phase Customers	20,146 kW, rateclass peak	\$24.68	\$497	\$633
	Three-Phase Customers	545,554 kW, rateclass peak	\$24.68	\$13,464	\$17,152
	Feeder Local Facilities				
	Single-Phase Customers	31,489 Design Demand	\$20.63	\$650	\$828
	Three-Phase Customers	853,385 Design Demand	\$9.00	\$7,680	\$9,784
DEMAND	Subtransmission	573,111 kW, rateclass peak	\$10.99	\$6,298	\$8,024
	Substation	565,700 kW, rateclass peak	\$10.12	\$5,725	\$7,293
SUBTOTAL				\$47,184	\$60,109
<b>Schedule 85 General Service (201-1,000 kW)</b>					
CUSTOMER	Meters				
	Secondary Customers	1,335 Customers	\$151.34	\$202	\$257
	Primary Customers	155 Customers	\$1,382.27	\$214	\$273
	Service & Transformer				
	Secondary Customers	1,335 Customers	\$1,732.11	\$2,313	\$2,947
	Primary Customers	155 Customers	\$727.44	\$113	\$144
FACILITIES	Feeder Backbone	510,040 kW, rateclass peak	\$21.13	\$10,777	\$13,729
	Feeder Local Facilities	669,607 Design Demand	\$7.00	\$4,687	\$5,971
DEMAND	Subtransmission	516,722 kW, rateclass peak	\$10.99	\$5,679	\$7,234
	Substation	510,040 kW, rateclass peak	\$10.12	\$5,162	\$6,575
SUBTOTAL				\$29,147	\$37,131

PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2014

Grouping		Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 85 General Service (1,001-4,000 kW)</b>						
CUSTOMER	Meters					
	Secondary Meters	80	Customers	\$164.19	\$13	\$17
	Primary Meters	79	Customers	\$1,382.27	\$110	\$140
	Service & Transformer					
	Secondary Customers	80	Customers	\$4,581.85	\$367	\$467
	Primary Customers	79	Customers	\$867.23	\$69	\$88
FACILITIES	Feeder Backbone	213,587	kW, rateclass peak	\$21.14	\$4,515	\$5,752
	Feeder Local Facilities	264,530	Design Demand	\$4.66	\$1,233	\$1,570
DEMAND	Subtransmission	216,385	kW, rateclass peak	\$10.99	\$2,378	\$3,029
	Substation	213,587	kW, rateclass peak	\$10.12	\$2,162	\$2,754
SUBTOTAL					\$10,846	\$13,817
<b>Schedule 89 General Service (4,000 plus kW)</b>						
CUSTOMER	Meters					
	Secondary Meters	2	Customers	\$164.19	\$0	\$0
	Primary Meters	31	Customers	\$1,382.27	\$43	\$55
	Substation Meters	8	Customers	\$16,556.61	\$132	\$169
	Service & Transformer					
	Secondary Customers	2	Customers	\$11,054.47	\$22	\$28
	Primary Customers	31	Customers	\$2,548.39	\$79	\$101
FACILITIES	Feeder Backbone					
	Secondary Customers	2	Customers	\$73,144.00	\$146	\$186
	Primary Customers	31	Customers	\$73,144.00	\$2,267	\$2,889
	Subtransmission 115 kV Feeder	8	Customers	\$83,464.00	\$668	\$851
DEMAND	Subtransmission	453,534	kW, rateclass peak	\$10.99	\$4,984	\$6,350
	Substation (Sec. & Prim. Only)	374,623	kW, rateclass peak	\$10.12	\$3,791	\$4,830
SUBTOTAL					\$12,134	\$15,457
<b>Schedules 91 &amp; 95 Streetlighting &amp; Highway Lighting</b>						
CUSTOMER	Customer Service	158,628	Lights	\$3.39	\$537	\$684
	Service & Transformer	158,628	Lights	\$5.01	\$795	\$1,012
FACILITIES	Feeder Backbone	27,068	kW, rateclass peak	\$25.26	\$684	\$871
	Feeder Local Facilities	27,068	Design Demand	\$17.81	\$482	\$614
DEMAND	Subtransmission	27,422	kW, rateclass peak	\$10.99	\$301	\$384
	Substation	27,068	kW, rateclass peak	\$10.12	\$274	\$349
FIXED	Luminaires & Poles					\$7,946
SUBTOTAL					\$3,073	\$11,861

PORTLAND GENERAL ELECTRIC  
ALLOCATION OF DISTRIBUTION COST  
2014

Grouping		Usages	Units & Basis	Marginal Unit Cost	Marginal Cost Revenues	Class Revenue Requirement
<b>Schedule 92 Traffic Signals</b>						
CUSTOMER	Service & Transformer	1,772	Intersections	\$12.09	\$21	\$27
FACILITIES	Feeder Backbone	531	kW, rateclass peak	\$25.26	\$13	\$17
	Feeder Local Facilities	531	Design Demand	\$9.09	\$5	\$6
DEMAND	Subtransmission	538	kW, rateclass peak	\$10.99	\$6	\$8
	Substation	531	kW, rateclass peak	\$10.12	\$5	\$7
SUBTOTAL					\$51	\$65
<b>Schedule 93 Stadium Lighting</b>						
CUSTOMER	Meters	24	Customers	\$1,296.40	\$31	\$40
	Service & Transformer	24	Customers	\$72.37	\$2	\$2
FACILITIES	Feeder Backbone	1,017	kW, rateclass peak	\$25.26	\$26	\$33
	Feeder Local Facilities	1,956	Design Demand	\$9.09	\$18	\$23
DEMAND	Subtransmission	1,030	kW, rateclass peak	\$10.99	\$11	\$14
	Substation	1,017	kW, rateclass peak	\$10.12	\$10	\$13
SUBTOTAL					\$98	\$125
<b>Summary</b>						
CUSTOMER	Meters	840,466	Customers		\$20,567	\$26,201
	Service & Transformer		Customers		\$92,561	\$117,915
	Customer Service	179,249	Lights		\$607	\$773
FACILITIES	Feeder Backbone	3,718,407	kW, rateclass peak		\$96,218	\$122,574
	Feeder Local Facilities	5,592,682	Design Demand		\$78,868	\$100,472
DEMAND	Subtransmission	4,220,651	kW, rateclass peak		\$46,385	\$59,091
	Substation	4,093,030	kW rateclass Peak		\$41,421	\$52,768
FIXED	Luminaires & Poles					\$10,463
TOTALS					\$376,627	\$490,257
					TARGET	\$490,257
					EQUAL PERCENT	127.4%

**Lighting Additional O&M**

	Lights	Intersections
Schedule 15R	9,513	
Schedule 15C	11,108	
Schedule 91 & 95	158,628	
Schedule 92		1,772
Lights	179,249	
Intersections		1,772

**RC 313 Test Period O&M**

N34206	\$355,337
N34215	<u>\$251,710</u>
	\$607,047
O&M per light	\$3.39

**Design Demand per Rate Schedule**

Grouping	Design	Average Customers	Design Demand
Schedule 7 1-phase	4.0	733,968	2,935,872
Schedule 7 3-phase	4.0	82	329
Schedule 32 1-phase	5.0	53,942	269,711
Schedule 32 3-phase	11.3	34,854	393,855
Schedule 38 1-phase	44.7	38	1,699
Schedule 38 3 phase	126.5	238	30,128
Schedule 47 1-phase	10.0	220	2,200
Schedule 47 3 phase	10.0	2,983	29,830
Schedule 49 1-phase	31.0	4	124
Schedule 49 3 phase	57.5	1,292	74,290
Schedule 83 1-phase	45.2	697	31,489
Schedule 83 3 phase	81.8	10,433	853,385
Schedule 85	449.3	1,490	669,607
Schedule 85 1-4 MW	1,660.2	159	264,530
Schedule 93	81.5	24	1,956

Billing Marginal Costs 2014

Item	Account	2014 Amount	Allocation	Sch. 7 Residential	Sch. 15 Res.	Sch. 15 Comm.	Sch. 32 Gen. Serv.	Sch. 38 GS TOU	Sch. 47 Irrigation	Sch. 49 Irrigation	Sch. 83 Gen. Serv.	201-1000 Sch. 85 Gen. Serv.	1,001-4,000 Sch. 86 Gen. Serv.	Over 4,000 Sch. 89 Gen. Serv.	Sch. 91 & 95 STL	Sch. 92 Shared	Sch. 93 Fixed Lights	Totals
2014 Billing Marginal Costs				734,050	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
207 - Meter Services	9030001	\$430,138 weighted percentage		\$285,989	\$226	\$352	\$76,980	\$3,042	\$2,540	\$1,537	\$46,710	\$11,738	\$408	\$10	\$0	\$0	\$399	\$430,138 match
279 - Cash Remittance	9030001	\$503,548 number of customers		\$530,033	\$637	\$591	\$64,116	\$3,199	\$2,433	\$386	\$8,015	\$990	\$101	\$18	\$148	\$12	\$17	\$503,548 match
432 - Customer Contact	9030001	\$3,363,507 number of customers up to 200 kW		\$2,936,631	\$3,529	\$5,489	\$352,240	\$0	\$12,814	\$5,185	\$4,434	\$0	\$0	\$0	\$0	\$0	\$97	\$3,363,507 match
433 - Retail Receivables	9030001	\$1,555,349 adjusted write offs		\$1,785,885	\$0	\$0	\$96,486	\$0	\$1,759	\$4,077	\$47,043	\$0	\$0	\$0	\$0	\$0	\$0	\$1,555,349 match
436 - Call Systems DU	9030001	\$1,011,182 billing suballocation		\$847,751	\$755	\$1,653	\$129,336	\$253	\$4,482	\$1,177	\$11,108	\$1,362	\$130	\$36	\$1,900	\$158	\$33	\$1,011,182 match
437 - CIS Billing	9030001	\$1,136,818 Number of customers, STL & signals repair		\$980,433	\$1,176	\$1,680	\$115,335	\$364	\$4,164	\$1,178	\$15,085	\$1,362	\$130	\$36	\$1,900	\$158	\$33	\$1,136,818 match
439 - Specialized Bill	9030001	\$977,710 DA history		\$0	\$0	\$12,435	\$804,834	\$2,302	\$29,031	\$2,457	\$44,892	\$12,432	\$1,722	\$355	\$1,858	\$154	\$219	\$977,710 match
452 - Field Collecto	9030001	\$1,274,345 adjusted write offs		\$1,185,869	\$0	\$0	\$50,880	\$0	\$5,070	\$2,657	\$17,618	\$0	\$0	\$0	\$0	\$0	\$57	\$1,274,345 match
453 - Community Ofic	9030001	\$1,330,839 number of customers up to 200 kW		\$1,161,528	\$1,396	\$2,172	\$140,557	\$0	\$5,070	\$2,657	\$17,618	\$0	\$0	\$0	\$0	\$0	\$57	\$1,330,839 match
454 - Electronic Bill	9030001	\$1,390,839 number of customers up to 200 kW		\$1,161,528	\$1,396	\$2,172	\$140,557	\$0	\$5,070	\$2,657	\$17,618	\$0	\$0	\$0	\$0	\$0	\$57	\$1,390,839 match
367 - Customer Digita	9030001	\$422,400 billing suballocation		\$384,130	\$315	\$474	\$54,028	\$306	\$1,672	\$888	\$6,400	\$527	\$54	\$15	\$794	\$66	\$14	\$422,400 match
372 - Printing & Auto	9030001	\$418,765 number of customers		\$3,613,404	\$4,342	\$6,714	\$437,111	\$1,359	\$12,767	\$5,310	\$54,785	\$5,782	\$691	\$132	\$1,009	\$84	\$118	\$418,765 match
373 - Business Servis	9030001	\$613,483 billing suballocation		\$534,050	\$642	\$898	\$64,684	\$301	\$1,330	\$843	\$8,097	\$998	\$102	\$28	\$349	\$12	\$17	\$613,483 match
374 - Customer Servis	9030001	\$8,005,452 billing suballocation		\$6,711,581	\$5,574	\$14,690	\$1,021,876	\$2,000	\$39,480	\$16,818	\$167,111	\$3,994	\$1,028	\$283	\$15,043	\$1,347	\$258	\$8,005,452 match
376 - Network Data Op	9030001	\$1,108,372 Number of customers less unmetered lightin		\$1,093,110	\$0	\$0	\$1,819	\$0	\$21	\$4	\$360	\$4	\$0	\$0	\$0	\$0	\$0	\$1,108,372 match
Percent of Total Dollars (%)				\$73,719,075	\$31,088	\$55,573	\$5,653,037	\$10,025	\$128,418	\$50,319	\$590,175	\$46,631	\$4,356	\$598	\$52,523	\$4,356	\$1,101	\$18,380,699
Cost per Customer				\$0.44	\$0.23	\$0.37	\$0.40	\$0.25	\$0.36	\$0.45	\$0.24	\$0.25	\$0.25	\$0.34	\$0.26	\$0.25	\$0.18	\$1.957
207 - Meter Services	9030001	\$430,138 weighted percentage		66.48%	0.08%	0.08%	17.90%	0.71%	0.59%	0.36%	10.85%	2.73%	0.19%	0.00%	0.00%	0.00%	0.05%	100%
279 - Cash Remittance	9030001	\$503,548 number of customers		87.10%	0.10%	0.18%	10.54%	0.00%	0.38%	0.13%	1.37%	0.16%	0.02%	0.00%	0.00%	0.00%	0.06%	100%
432 - Customer Contact	9030001	\$3,363,507 number of customers up to 200 kW		87.31%	0.10%	0.18%	10.56%	0.00%	0.38%	0.13%	1.37%	0.16%	0.02%	0.00%	0.00%	0.00%	0.06%	100%
433 - Retail Receivables	9030001	\$1,555,349 adjusted write offs		91.34%	0.00%	0.00%	4.93%	0.00%	0.09%	0.21%	3.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
436 - Call Systems Quality Assurance	9030001	\$1,011,182 billing suballocation		91.34%	0.00%	0.00%	12.79%	0.00%	0.44%	0.21%	2.09%	0.12%	0.01%	0.00%	0.00%	0.00%	0.00%	100%
437 - CIS Billing	9030001	\$1,136,818 Number of customers, STL & signals repair		84.33%	0.10%	0.18%	10.20%	0.03%	0.37%	0.13%	1.38%	0.16%	0.02%	0.00%	0.00%	0.00%	0.00%	100%
439 - Specialized Billing	9030001	\$977,710 DA history		0.00%	0.00%	1.27%	82.33%	2.57%	1.20%	1.20%	10.32%	1.27%	0.13%	0.04%	0.19%	0.24%	0.00%	100%
452 - Field Collections	9030001	\$1,274,345 adjusted write offs		91.34%	0.00%	0.00%	4.93%	0.00%	0.38%	0.13%	3.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
453 - Community Offices	9030001	\$1,330,839 number of customers up to 200 kW		87.31%	0.10%	0.18%	10.56%	0.00%	0.38%	0.13%	1.37%	0.16%	0.02%	0.00%	0.00%	0.00%	0.06%	100%
454 - Electronic Bills & Payments	9030001	\$1,390,839 number of customers up to 200 kW		87.31%	0.10%	0.18%	10.56%	0.00%	0.38%	0.13%	1.37%	0.16%	0.02%	0.00%	0.00%	0.00%	0.06%	100%
367 - Web Management	9030001	\$422,400 billing suballocation		83.84%	0.07%	0.18%	12.79%	0.03%	0.44%	0.21%	2.09%	0.12%	0.01%	0.00%	0.00%	0.00%	0.00%	100%
372 - Printing & Automated Mail Svc	9030001	\$418,765 number of customers		87.10%	0.10%	0.18%	10.54%	0.03%	0.38%	0.13%	1.37%	0.16%	0.02%	0.00%	0.00%	0.00%	0.06%	100%
373 - Business Services Group	9030001	\$613,483 billing suballocation		83.84%	0.07%	0.18%	12.79%	0.03%	0.44%	0.21%	2.09%	0.12%	0.01%	0.00%	0.00%	0.00%	0.06%	100%
374 - Revenue Operations	9030001	\$8,005,452 billing suballocation		83.84%	0.07%	0.18%	12.79%	0.03%	0.44%	0.21%	2.09%	0.12%	0.01%	0.00%	0.00%	0.00%	0.06%	100%
376 - Network Data Operations	9030001	\$1,108,372 Number of customers less unmetered lightin		98.54%	0.00%	0.00%	1.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
Customer Group A Weighting																		
279 - Cash Remittance	9030001	\$430,138 weighted percentage		73.40%	581	904	1,975	7807	6520	3,946	11,910	3012	2073	26	0	0	510	110,038
432 - Customer Contact	9030001	\$3,363,507 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
433 - Retail Receivables	9030001	\$1,555,349 adjusted write offs		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
436 - Call Systems Quality Assurance	9030001	\$1,011,182 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
437 - CIS Billing	9030001	\$1,136,818 Number of customers, STL & signals repair		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
439 - Specialized Billing	9030001	\$977,710 DA history		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
452 - Field Collections	9030001	\$1,274,345 adjusted write offs		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
453 - Community Offices	9030001	\$1,330,839 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
454 - Electronic Bills & Payments	9030001	\$1,390,839 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
367 - Web Management	9030001	\$422,400 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
372 - Printing & Automated Mail Svc	9030001	\$418,765 number of customers		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
373 - Business Services Group	9030001	\$613,483 billing suballocation		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
374 - Revenue Operations	9030001	\$8,005,452 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
376 - Network Data Operations	9030001	\$1,108,372 Number of customers less unmetered lightin		73.40%	0	0	10,669	0	14	3	253	0	0	0	0	0	0	60,864
Customer Group B Weighting																		
279 - Cash Remittance	9030001	\$430,138 weighted percentage		73.40%	581	904	1,975	7807	6520	3,946	11,910	3012	2073	26	0	0	510	110,038
432 - Customer Contact	9030001	\$3,363,507 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
433 - Retail Receivables	9030001	\$1,555,349 adjusted write offs		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
436 - Call Systems Quality Assurance	9030001	\$1,011,182 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
437 - CIS Billing	9030001	\$1,136,818 Number of customers, STL & signals repair		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
439 - Specialized Billing	9030001	\$977,710 DA history		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
452 - Field Collections	9030001	\$1,274,345 adjusted write offs		73.40%	0	0	3,958	0	723	1,676	2,757	0	0	0	0	0	0	60,864
453 - Community Offices	9030001	\$1,330,839 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
454 - Electronic Bills & Payments	9030001	\$1,390,839 number of customers up to 200 kW		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
367 - Web Management	9030001	\$422,400 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
372 - Printing & Automated Mail Svc	9030001	\$418,765 number of customers		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
373 - Business Services Group	9030001	\$613,483 billing suballocation		73.40%	882	1,372	88,797	276	3,203	1,296	11,119	1,372	140	39	205	37	24	841,802
374 - Revenue Operations	9030001	\$8,005,452 billing suballocation		73.40%	1	3	11,251	0	14	3	253	0	0	0	0	0	0	60,864
376 - Network Data Operations	9030001	\$1,108,372 Number of customers less unmetered lightin		73.40%	0	0	10,669	0	14	3	253	0	0	0	0	0	0	60,864

2014 Test Year Street and Highway lighting, Traffic Signals and Outdoor Area Lighting Billing Costs

	2011 Test Year		2014 Test Year	
	Sch 91 & 92		Sch 91,92,95	Sch 91,92,95,15
Current billing: hours per month	70.68		70.68	Sch 15 84.92 Total
Hourly Billing Rate (unloaded)		23.51		\$26.14
Monthly Billing (unloaded)		\$ 1,662		\$1,605
Annual Billing		\$ 19,940		\$19,262
Total Loaded Cost		\$ 34,429		\$34,243
				\$47,356
				\$81,600
Loading	1.7266		1.77779	1.77779
Standard Service Schedules	2011	2011	2014	Allocated Cost
Schedule 91 & 95 - Street and Highway Lighting	Customer Count	Allocated Cost	Customer Count	Sch 91,92,95,15
Schedule 92 - Traffic Signals Standard Service	205	\$ 31,792.38	205	\$31,621
	17	\$ 2,636.44	17	\$2,622
	222	\$ 34,429	222	\$34,243
Schedule 15 - Residential - Outdoor Area Lighting			882	\$18,531
Schedule 15 - Commercial - Outdoor Area Lighting			1,372	\$28,826
			2,254	\$47,356.25
				\$81,600



**PORTLAND GENERAL ELECTRIC  
2014 MARGINAL COST STUDY  
SUMMARY OF CUSTOMER SERVICE MARGINAL COSTS**

To apply gross-up factors: 1=yes, otherwise 0 ==>	1
---	---

SCHEDULE	ANNUAL METERING EXPENSES	ANNUAL BILLING EXPENSES	ANNUAL OTHER EXPENSES	TOTAL CUSTOMER EXPENSES
Schedule 7 Residential	\$0.45	\$ 51.80	\$20.17	\$72.42
Schedule 15 Residential	\$0.00	\$ 40.24	\$20.16	\$60.40
Schedule 15 Commercial	\$0.00	\$ 63.54	\$36.63	\$100.17
Schedule 32 General Service	\$1.01	\$ 68.21	\$46.31	\$115.54
Schedule 38 GS TOU	\$12.96	\$ 43.06	\$50.52	\$106.54
Schedule 47 Irrigation	\$0.93	\$ 65.81	\$38.47	\$105.20
Schedule 49 Irrigation	\$1.50	\$ 77.18	\$41.25	\$119.93
Schedule 83 General Service	\$5.06	\$ 89.18	\$83.99	\$178.24
Schedule 85 General Service	\$10.72	\$ 43.29	\$824.75	\$878.76
Schedule 89 General Service (1001-4000 KW)	\$7.65	\$ 43.52	\$3,554.04	\$3,605.20
Schedule 89 General Service (OVER 4,000 KW)	\$0.00	\$ 43.13	\$41,182.48	\$41,225.61
Schedule 91 & 95 Streetlighting	\$0.00	\$ 436.03	\$334.22	\$770.25
Schedule 92 Traffic Sign. & Comm. Dev.	\$0.00	\$ 436.03	\$188.87	\$624.90
Schedule 93 Field Lighting	\$9.49	\$ 63.96	\$101.58	\$175.03

**BEFORE THE PUBLIC UTILITY COMMISSION**  
**OF THE STATE OF OREGON**  
**UE 262**  
**CITY OF PORTLAND**

Direct Testimony of:

Richard Gray

June 14, 2013

**Q. PLEASE STATE YOUR NAME, ADDRESS AND POSITION.**

A. My name is Richard Gray. I am a Senior Management Analyst for the City of Portland's Bureau of Transportation (PBOT). My business address is 2929 N. Kerby Avenue, Portland, OR 97227.

**Q. WHAT TOPICS DOES YOUR TESTIMONY ADDRESS?**

A. My testimony addresses the issues of Associated Circuits and Pole Costs, as these relate to street lighting.

**Q. PLEASE DESCRIBE THE CITY OF PORTLAND'S STREET LIGHTING SYSTEM.**

A. The City of Portland first began lighting its streets in 1852, 161 years ago. Since then the City's street lighting system has expanded to include over 55,000 lights, all owned by the City and nearly all High Pressure Sodium (HPS). The City buys electricity and much of the maintenance for its street lighting system from PGE. PGE also serves the street lights in PacifiCorp's allocated service territory within Portland, under a 1977 agreement between the two electric utilities.

PGE's Schedule 91 provides three options for street lighting services:

Schedule 91	Option A	Option B	Option C
Ownership	PGE Provides (customer pays rent)	Customer Provides	Customer Provides
Maintenance	PGE Provides	PGE Provides	Customer Provides
Energy	PGE Provides	PGE Provides	PGE Provides

PBOT's crews maintain more than 11,000 Option C lights. PGE maintains almost 44,000 Option B lights for Portland. The City has no Option A lights.

1 All of these street lights are unmetered and billed on a flat rate basis for both maintenance  
2 and energy, based on assumed operation of 4,150 hours per year. Ninety percent of the City's  
3 street lighting annual budget of \$7 million is paid for out of the General Fund.<sup>1</sup> The City has  
4 a long history of working hard to keep these costs low to protect the City's taxpayers. Street  
5 lighting is a vital component of public safety and helps support the economic vitality of the  
6 City of Portland.

7  
8 Going into fiscal year 2013-2014, the City of Portland was facing a budget shortfall of \$25  
9 million.<sup>2</sup> In response to this large shortfall, the City's FY 2013-14 budget includes  
10 eliminating 183 positions throughout the City and reduces budgets in all bureaus to 90  
11 percent of current cost of service in addition to additional targeted cuts.<sup>3</sup> While the economy  
12 is slowly improving, the City is facing significant risk associated with the level of the City's  
13 future General Fund revenues. Approximately 90 percent of the City's revenues come from  
14 three sources: property taxes, business licenses and utility licenses/franchise fees. All of  
15 these rely on economic recovery to ensure the City collects sufficient revenues to meet costs.  
16  
17 On December 19, 2012, the City Council adopted two ordinances regarding the conversion of  
18 City street lights from high pressure sodium to energy efficient light-emitting diodes (LEDs).  
19 City of Portland Ordinance No. 185837 (authorizing revenue bonds for the lighting efficiency  
20 program) and City of Portland Ordinance No. 185838 (directing system replacement and  
21 renewable energy from LED streetlight conversion). PBOT has solicited formal bidding  
22  
23

24 <sup>1</sup> *City of Portland, Oregon – FY 2012-13 Adopted Budget: Transportation and Parking Service Area*, pp. 504-506,  
25 <http://www.portlandoregon.gov/cbo/article/405643> (accessed on June 11, 2013).

26 <sup>2</sup> Office of Management and Finance, *Five Year General Fund financial Forecast*, p. 1, Table 1 (December, 2012)  
<http://www.portlandoregon.gov/cbo/article/424030> (accessed on June 13, 2013).

<sup>3</sup> Memorandum from Budget Director Andrew Scott to Portland City Council, Approval of City of Portland FY

1 proposals from contractors to provide labor, equipment, materials and incidental work  
2 necessary to completely remove the existing HPS luminaires and install approximately  
3 44,000 LED luminaires within the City of Portland. City of Portland Bid Solicitation  
4 Number 115487. The due date for bidding on this project closed on June 11, 2013 at 2:00  
5 p.m. Through this process, the City intends to ultimately convert all of its street lights to  
6 LED. The resultant lower power consumption will save the City money and will help to  
7 reduce the City's creation of green house gasses consistent with the City's Climate Policy.  
8 LEDs also require much less maintenance, resulting in further savings. The City's goal is to  
9 purchase power under PGE's Schedule 95 Option C and perform maintenance primarily  
10 through the use of contractors.  
11  
12

13 **I. ASSOCIATED CIRCUITS**

14 **Q. PLEASE DESCRIBE THE CITY'S CONCERNS WITH ASSOCIATED CIRCUITS.**

15 A. PGE's proposed Schedule 91, page 91-4 provides that once a customer assumes maintenance  
16 of the new LED streetlights (which the customer purchases and installs), the customer will be  
17 required to also assume on-going maintenance of "associated circuits". The City of Portland  
18 objects to this requirement as an inappropriate shift in responsibilities and costs to Option C  
19 streetlight customers. These circuits are inherently part of PGE's distribution system.  
20  
21 Maintenance of these circuits should be treated the same as maintenance of other parts of  
22 PGE's distribution system.  
23

24 **Q. WHAT ARE THESE CIRCUITS?**

25 A. Associated circuits are secondary voltage lines that feed street light services, whether  
26

1 individual or group luminaires. See, PGE's response to City of Portland DR 36, attached as  
2 COP Exhibit 201. Associated circuits are part of PGE's power distribution system and are  
3 dedicated to serving street lights. These circuits typically run from PGE's other distribution  
4 facilities to the customer's light (in the City of Portland's case, these lights are all owned by  
5 the City) much like the service drop to a customer's house (the service drop is owned and  
6 maintained by PGE). These circuits can be overhead or underground. Many of the circuits  
7 are not located in the public right-of-way. If PGE unilaterally transfers maintenance  
8 responsibilities of these circuits to the customer, this will result in the customers having  
9 access issues.  
10

11 **Q. WHO OWNS AND MAINTAINS THESE CIRCUITS?**  
12

13 A. PGE owns and maintains the associated circuits as part of its distribution system. PGE is  
14 currently reimbursed for its investment cost through a circuit charge applied to each Option A  
15 and Option B light. The charge is \$1.38 per light per month, regardless of whether the light  
16 uses these dedicated circuits. PGE describes this in its response to the City of Portland's DR  
17 38, attached as COP Exhibit 202. PGE proposes to discontinue this cost as part of UE 262  
18 and include those costs as part of its distribution system charges. PGE's adoption of this new  
19 methodology further reinforces the City's position that these are distribution assets and  
20 should not be the customers' responsibility. PGE has indicated at various times that they do  
21 not want to maintain what they don't own. The City of Portland feels the same way with  
22 regard to these parts of PGE's distribution system. These circuits are analogous to the service  
23 drop to a house: PGE owns the distribution wire, including the service drop, to the house; the  
24 homeowner has no responsibility to maintain the distribution wire as a component of PGE's  
25  
26

1 distribution system; PGE is compensated for the maintenance work and recovers its  
2 investment through distribution charges embedded in the energy rate.

3 **Q. HAVE CIRCUIT CHARGES BEEN ADDRESSED IN PRIOR PGE RATE**  
4 **PROCEEDINGS?**

5  
6 A. Yes. In UE 215 the City of Portland raised objections to PGE's circuit charge. PGE and the  
7 City conducted a study of these charges, that concluded with PGE's commitment to include  
8 the circuit charges as part of its distribution rates. UE 215, *PGE/City Of Portland's Report*  
9 *on Stipulation in compliance with Order No. 10-478* (January 19, 2012). PGE recently re-  
10 affirmed its commitment to this approach. See, COP Exhibit 202. The City of Portland  
11 applauds and endorses this change. As discussed above, these circuits are properly part of  
12 PGE's distribution system.  
13

14 **Q. HOW DOES PGE PROPOSE THAT THESE DISTRIBUTION CIRCUITS BE**  
15 **MAINTAINED?**

16 A. PGE proposes that the maintenance of the circuits used to power Option C lights be  
17 maintained by the customer. The circuits used to power Option A lights would continue to  
18 be maintained by PGE (under Schedule 95, there will be no Option B lights) at no additional  
19 charge beyond the "Distribution Charge" paid by all Schedule 95 customers and shown in the  
20 tariff. Because all customers pay the same rate, this means that Option C customers will be  
21 paying for circuit maintenance services that they would not be receiving. To the extent that  
22 PGE is working on a marginal COS model, the distribution charges should drop for Option C  
23 street lights in an amount equivalent to PGE's avoided costs of providing maintenance on the  
24 associated circuits. On top of this, these customers will have to perform maintenance on  
25  
26

1 parts of the power distribution system that the customer would be forced to purchase.

2 **Q. HAS PGE OTHERWISE EXPRESSED AN OFFER TO SELL THESE CIRCUITS TO**  
3 **THE CITY?**

4 A. No. Portland Bureau of Transportation Street Lighting staff have been in discussions with  
5 PGE representatives for months, making preparations for the City's proposed conversion to  
6 LEDs and an all Option C system. There have been discussions between City and PGE  
7 representatives regarding the City's potential purchase of several Street Lighting Only (SLO)  
8 poles. However, at no time during these meetings has PGE raised the issue of the City  
9 purchasing the associated circuits. This has only surfaced as part of PGE's response to a data  
10 request from the City of Portland. See, PGE response to City of Portland DR 40(a), attached  
11 as COP Exhibit 203.

12 PGE has seemingly embarked upon a campaign to encourage customers to elect Option A  
13 street lighting. The requirement for Option C street lights to purchase and maintain  
14 associated circuits seems to have arisen as a financial inducement to choosing Option A or as  
15 fiscal penalty to choosing Option C. Ownership of the circuits is not mentioned in the  
16 existing or proposed Schedule 95. Rather, existing Schedule 95 references future circuit  
17 maintenance obligations for Option C luminaire conversions.<sup>4</sup> The only apparent reference to  
18 an obligation to acquire associated circuits seems to otherwise be restricted to PGE's  
19 response to a City data request.

20 Further, PGE apparently retains sole discretion on how it will determine what constitutes an  
21  
22  
23  
24

25 <sup>4</sup> See, PGE PUC Oregon No. E-18, Sheet 95-2, *Maintenance Service under Option C* (November 7, 2012)  
26 [http://www.portlandgeneral.com/our\\_company/corporate\\_info/regulatory\\_documents/pdfs/schedules/Sched\\_095.pdf](http://www.portlandgeneral.com/our_company/corporate_info/regulatory_documents/pdfs/schedules/Sched_095.pdf)  
(accessed June 13, 2013)



1 “associated circuit.” PGE hasn't identified any consistent methodology on how the costs of  
2 the associated circuits might be appropriately evaluated, nor a mechanism for rolling these  
3 assets off its balance sheet. Moreover, some of these associated circuits may be located on  
4 private property, to which PGE may have access rights but not the City or other street lighting  
5 customers. PGE has not provided any details on what the process may be for PGE  
6 coordinating with customers on performing maintenance, as these associated circuits may be  
7 interwoven with other distribution facilities. The OPUC should disallow this change: Street  
8 lighting customers (and their constituent taxpayers) should not be mandated to purchase parts  
9 of PGE's distribution system in a form of reverse condemnation where a private entity  
10 requires the public to purchase private assets.  
11  
12

## 13 **II. POLE COSTS**

### 14 **Q. HOW HAVE POLE COSTS CHANGED IN UE 262?**

15 A. Pole rental costs have gone up 55% and pole maintenance costs have gone up approximately  
16 26%, with no accompanying justification.  
17

### 18 **Q. HOW MANY POLES DOES PGE MAINTAIN FOR THE CITY?**

19 A. The City pays PGE to maintain nearly 5,700 poles. These are a mixture of Option A (PGE-  
20 owned) and Option B (Customer-owned).  
21

### 22 **Q. WHAT IS PGE'S CHARGE FOR POLE MAINTENANCE?**

23 A. PGE charges 0.2742% times the installation costs for maintenance. See, cell J2 of work file  
24 “Stl2014 Investment Calc.xlsx” tab “91 Pole Inv, attached as COP Exhibit 204. While there  
25 is no corresponding explanation for this percentage, the City's experience in past rate cases  
26 has been that pole knockdowns (usually from vehicle crashes) are the major driver to this cost

1 component.

2 **Q. HAS THIS ISSUE BEEN ADDRESSED IN ANY PRIOR PGE RATE CASES?**

3 A. In UE 115, the City of Portland submitted testimony regarding four examples of emergency  
4 pole replacement rates with other pole owners that had a much lower rate of knockdowns.

5 UE 115 (COP Exhibit 200, beginning at page 11). This testimony can be summarized as  
6 follows:  
7

Pole Owner	% replaced due to knockdown/year.
City of Portland Option C	0.25%
Eugene Water and Electric Board	0.10%
McMinnville Water & Light	0.10%
Salem Electric	0.10%

8  
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13  
14  
15 The average of these figures is about 0.15%. The City of Portland, the League of Oregon  
16 Cities and PGE wound up resolving that matter by agreeing to a replacement frequency rate  
17 of 0.25%. UE 115, Order No. 01-777, App. C, p. 4 (August 31, 2001). PGE has apparently  
18 adhered to this number until now, when it inexplicably employed a higher replacement rate of  
19 0.2742%.

20 **Q. HAVE YOU DONE ANY FURTHER RESEARCH REGARDING EMERGENCY**  
21 **POLE REPLACEMENT RATES?**  
22

23 A. Yes. Charter Communications staff recently reported that they have about 1,000 poles in  
24 Oregon and no knowledge of any knockdowns. McMinnville Power and Light recently  
25 reported that they have about 2,000 street lighting poles and average 3 knockdowns per year  
26

1 (0.15%). The City of Gresham reports owning 5,367 poles and only having 3 knockdowns  
2 last year (0.055%). CenturyLink reports that they had 23 emergency pole replacements over  
3 the last five years out of an inventory of 141,933 poles. This equates to .0162% over 5 years  
4 or .00324% per year. Reed Schmidt, an economist with the California City-County Street  
5 Light Association, has indicated that emergency replacement rates of 1-3 poles per 10,000 is  
6 typically common. Other utilities have provided similar reports.

7  
8 **Q. HAVE YOU IDENTIFIED OTHER ISSUES WITH PGE'S POLE COST**  
9 **CALCULATIONS?**

10 A. There appears to be no offset for insurance reimbursements. It is common for pole  
11 knockdowns to have a police report identifying the person causing the damage. In Gresham's  
12 example, all three of the knockdowns were by insured motorists and PGE had the  
13 information available to recover their costs. They probably did. Responsible pole  
14 owners/maintainers have a duty to get compensation from drivers who damage poles, rather  
15 than simply recover the costs through rates. Based on my research, obtaining reimbursements  
16 is common practice. However, PGE offers no offset for this. Instead, PGE may get  
17 reimbursed by both the driver and the street lighting customer. The City of Portland has an  
18 extensive inventory of electrical facilities in the right-of-way; we received about \$200,000 in  
19 the last fiscal year from insurance claims, thus saving the taxpayer from bearing the costs.

20  
21  
22 **Q. WHAT DO YOU CONCLUDE ABOUT POLE MAINTENANCE COSTS?**

23 A. PGE provides no evidence for their maintenance rates, they seem to be using numbers far  
24 different than the experience of other pole owners and contrary to their prior stipulation and  
25 there is no evidence of attempting to reduce ratepayer costs by recovering from those who  
26

1 damage poles.

2 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**  
3 **QUALIFICATIONS.**

4 A. I have a Bachelor of Science in Political Science from the University of Oregon and a Master  
5 of Science in Public Affairs from the University of Oregon.

6  
7 In my current position with PBOT, my responsibilities include: Contract Administrator,  
8 Legislative Liaison, Contractor Outreach, Consultant for Street Lighting, and several other  
9 functions. Among my prior job responsibilities with the City of Portland, I served as PBOT's  
10 Street Lighting Manager for ten years. In that capacity, I offered testimony in several prior  
11 electric utility rate cases. I also conducted audits of PGE's charges for street lighting services  
12 resulting in over \$375,000 in credits for inappropriate charges. I am also a founding member  
13 and Board Member of the Oregon Joint Use Association, a non-profit charged with advising  
14 the OPUC on utility joint use issues.  
15

16 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

17 A. Yes.  
18  
19  
20  
21  
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24  
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26

June 5, 2013

TO: Benjamin Walters  
City of Portland

David Tooze  
City of Portland

FROM: Patrick Hager  
Manager, Regulatory Affairs

**PORTLAND GENERAL ELECTRIC**  
**UE 262**  
**PGE Response to City of Portland Data Request**  
**Dated May 22, 2013**  
**Question No. 036**

**Request:**

In various places in the proposed tariff revisions, PGE references "associated circuits" when discussing the conversion of streetlights to Option C luminaires. See, for example, UE 262/Exhibit 1501 /Cody- Macfarlane at pages 30, 79 and 91. Please describe:

- a. What are "associated circuits" as PGE uses this phrase.
- b. How will PGE determine what are "associated circuits," whether on the basis of individual luminaires or for groups of luminaires?
- c. How will PGE determine what "associated circuits" are for any specific luminaire or groups of luminaires?
- d. Are distribution circuits "associated circuits"?
- e. What other elements of PGE's distribution system might be included within "associated circuits?"
- f. Do "associated circuits" include underground facilities, or aerial facilities, or a mixture of both?
- g. Are "associated circuits" dedicated to serving luminaires, or are the "associated circuits" used by PGE for providing service to other PGE customers?
- h. Are the "associated circuits" used to provide power to service drops to residential or commercial properties?

UE 262 PGE Response to City of Portland DR No. 036  
June 5, 2013  
Page 2

- i. Please provide any audits or inspection reports of "associated circuits" regarding whether these circuits supply power to residential or commercial service drops?**

Response:

- a. "Associated circuits" as used in PGE Exhibit 1501/Cody - Macfarlane, pages 30, 79, 91 is used to indicate secondary voltage that feeds streetlight-only service.
- b. Associated circuits could serve an individual luminaire or a group of luminaires.
- c. PGE is conducting an ongoing field inspection of the lights in the City of Portland to verify that associated circuits serve streetlights only.
- d. See (a.) above.
- e. No other elements of the PGE distribution system are included within "associated circuits."
- f. Associated circuits include underground and overhead facilities.
- g. "Associated circuits" are dedicated to serving luminaires; they are generally not used by PGE to provide any other services to customers.
- h. See PGE's responses to part (g.) above.
- i. PGE is conducting an ongoing field inspection of the lights in the City of Portland to identify if any streetlight-only (SLO) poles supply power to residential or commercial service drops. If a SLO pole is used to supply power to a residential or commercial service drop, the pole will be reclassified as "secondary only" and is not an associated circuit.

June 5, 2013

TO: Benjamin Walters  
City of Portland

David Tooze  
City of Portland

FROM: Patrick Hager  
Manager, Regulatory Affairs

**PORTLAND GENERAL ELECTRIC**  
**UE 262**  
**PGE Response to City of Portland Data Request**  
**Dated May 22, 2013**  
**Question No. 038**

**Request:**

Regarding these "associated circuits," please describe how the capital investment in these circuits is recovered by PGE in rates.

**Response:**

The portion of the associated circuit that is covered by the line extension allowance is currently recovered through the circuit charge for each luminaire. The circuit charge is \$1.38 per light. In UE 262, PGE proposes to include the circuit investment in distribution and recover through the distribution energy charge. Any amount beyond the line extension allowance is paid directly by the Customer upon installation.

June 5, 2013

TO: Benjamin Walters  
City of Portland

David Tooze  
City of Portland

FROM: Patrick Hager  
Manager, Regulatory Affairs

**PORTLAND GENERAL ELECTRIC**  
**UE 262**  
**PGE Response to City of Portland Data Request**  
**Dated May 22, 2013**  
**Question No. 040**

**Request:**

Are the "associated circuits" currently owned by PGE? Are the "associated circuits" currently considered part of PGE's "utility plant?"

- a. Please discuss whether the "associated circuits" would continue to be assets owned by PGE following conversion to Option C luminaires.
- b. Please discuss if, after conversion to Option C luminaires, the customer's responsibility for maintenance costs of the "associated circuits" would include responsibility for replacement costs.
- c. If the customer will be responsible for replacement costs of the "associated circuits," please describe whether the replaced "associated circuits" will be PGE capital assets.
- d. If the customer will be responsible for the replacement costs, how will these capital assets be treated in PGE's rates?

**Response:**

The associated circuits for Option B luminaires are currently owned by PGE. They are considered utility plant.

- a. In order to convert to Option C, the Customer is required to purchase the associated circuits and they will no longer be PGE assets.



UE 262 PGE Response to City of Portland DR No. 040  
June 5, 2013  
Page 2

- b. Once the Customer assumes ownership, the Customer is responsible for maintenance and replacement costs of associated circuits of Option C luminaires.
- c. Once the Customer assumes ownership, the associated circuits will not be PGE capital assets.
- d. As they are not PGE capital assets, they are not included in PGE rates.

**Schedule 91  
Street and Highway Lighting  
Luminaire Revenue Summary**

**Gray  
Page 1 of 1**

A	B	C	D	E	F	G	H	I	J	K
1	Schedule 91 Pole Investment									
2							9.59%	Proposed	0.2742%	
3							Levelized	Monthly	Proposed	
4							Annual	Price of	Emergency	
5	CODE	Description of Light	Material	Pole Height	Option	Category	Installation	Cost	Investment	Replacement
6	1	Standard	Wood	30 to 35	A	Standard	\$926.20	\$88.81	\$7.40	
7	2	Post	Aluminum	30	A	Obsolete			\$8.86	
8	3	Standard	Wood	40 to 55	A	Standard	\$1,214.33	\$116.44	\$9.70	Pole 31 Price
9	4	Ameron Post Top	Concrete	25	A	Custom	\$3,192.95	\$306.15	\$25.51	
10	5	Ameron Post Top	Concrete	25	B	Custom				\$0.73
11	6	Davit	Aluminum	30	A	Custom	\$1,827.36	\$175.22	\$14.60	
12	7	Painted Regular	Steel	25	B	Obsolete				\$0.42
13	8	Regular	Aluminum	25	B	Custom				Pole 6 Price
14	9	Available Pole Code	0	0	0	0				\$0.42
15	10	Available Pole Code	0	0	0	0				
16	11	Painted Underground	Wood	35	A	Obsolete			\$7.40	
17	12	Davit	Aluminum	30	B	Custom				Pole 1 Price
18	13	Davit	Aluminum	25	B	Custom				\$0.42
19	14	Double Davit	Aluminum	30	B	Custom				\$0.42
20	15	Available Pole Code	0	0	0	0				\$0.62
21	16	Anchor Base - Gray	Fiberglass	35	A	Custom	\$2,183.84	\$209.40	\$17.45	
22	17	Anchor Base - Gray	Fiberglass	35	B	Custom				\$0.50
23	18	Davit	Aluminum	25	A	Custom	\$1,836.08	\$176.05	\$14.67	
24	19	Available Pole Code	0	0	0	0				
25	20	Available Pole Code	0	0	0	0				
26	21	Unpainted with 6-foot Mast Arm	Steel	30	B	Obsolete				\$0.42
27	22	Painted SLO Pole	Wood	35	A	Obsolete			\$7.40	Pole 12 Price
28	23	Laminated without Mast Arm	Wood	20	B	Obsolete				Pole 1 Price
29	24	Laminated SLO Pole	Wood	20	A	Obsolete			\$6.51	\$0.19
30	25	Ornamental Post	Concrete	35 or less	B	Obsolete				Pole 58 Price
31	26	Painted Underground	Wood	35	B	Obsolete				Pole 57 Price
32	27	Double Davit	Aluminum	30	A	Custom	\$2,701.37	\$269.02	\$21.58	\$0.42
33	28	Regular	Aluminum	35	A	Custom	\$2,380.63	\$228.27	\$19.02	Pole 8 Price
34	29	Davit	Aluminum	35	A	Custom	\$1,998.61	\$191.64	\$15.97	\$0.21
35	30	Ornamental Post	Concrete	35 or less	A	Obsolete			\$14.70	Pole 46 Price
36	31	Regular	Aluminum	16	A	Custom	\$1,108.68	\$106.31	\$8.66	Pole 32 Price
37	32	Regular	Aluminum	25	A	Custom	\$1,839.83	\$176.41	\$14.70	
38	33	Regular	Aluminum	30	A	Custom	\$1,988.57	\$190.67	\$15.89	
39	34	Regular	Aluminum	16	B	Custom				
40	35	Direct Bury with Shroud	Fiberglass	18	A	Custom	\$1,313.64	\$126.96	\$10.50	\$0.25
41	36	Direct Bury with Shroud	Fiberglass	18	B	Custom				
42	37	Painted Regular	Steel	25	A	Obsolete				\$0.30
43	38	Painted Regular	Steel	30	A	Obsolete			\$14.70	Pole 32 Price
44	39	Laminated without Mast Arm	Wood	20	A	Obsolete			\$15.89	Pole 33 Price
45	40	Unpainted with 8-foot Mast Arm	Steel	35	B	Obsolete			\$6.51	Pole 57 Price
46	41	Curved laminated	Wood	30	A	Obsolete				\$0.46
47	42	Unpainted with 8-foot Davit Arm	Steel	35	B	Obsolete			\$10.26	Pole 53 Price
48	43	Painted Ornamental - Portland Rd.	Aluminum	35	A	Custom	\$5,465.74	\$524.08	\$43.67	Pole 59 Price
49	44	Painted Ornamental - Portland Rd.	Aluminum	35	B	Custom				\$0.46
50	45	Curved laminated	Wood	30	B	Obsolete				Pole 53 Price
51	46	Standard	Wood	30 to 35	B	Standard				\$1.25
52	47	Standard	Wood	40 to 55	B	Standard				\$0.29
53	48	Regular	Aluminum	30	B	Custom				Pole 60 Price
54	49	Painted Regular	Steel	30	B	Obsolete				\$0.21
55	50	Available Pole Code	0	0	0	0				\$0.28
56	51	Unpainted with 6-foot Davit Arm	Steel	30	B	Obsolete				\$0.45
57	52	Available Pole Code	0	0	0	0				Pole 48 Price
58	53	Davit	Aluminum	35	B	Custom				\$0.42
59	54	Regular	Aluminum	35	B	Custom				Pole 12 Price
60	55	Bronze Alloy GardCo	Bronze	12	B	Obsolete				\$0.46
61	56	Available Pole Code	0	0	0	0				\$0.54
62	57	Black	Fiberglass	20	A	Standard	\$814.65	\$78.11	\$6.51	\$0.23
63	58	Black	Fiberglass	20	B	Standard				
64	59	Bronze	Fiberglass	30	A	Standard	\$1,283.55	\$123.07	\$10.26	\$0.19
65	60	Bronze	Fiberglass	30	B	Standard				
66	61	Gray	Fiberglass	30	A	Standard	\$1,385.24	\$132.82	\$11.07	\$0.29
67	62	Gray	Fiberglass	30	B	Standard				
68	63	Fluted Ornamental - Black	Fiberglass	14	A	Custom	\$1,965.25	\$188.44	\$15.70	\$0.32
69	64	Fluted Ornamental - Black	Fiberglass	14	B	Custom				
70	65	Fluted Victorian Ornamental	Aluminum	14	A	Custom	\$1,625.84	\$155.89	\$12.99	\$0.45
71	66	Fluted Ornamental	Aluminum	16	A	Custom	\$1,661.47	\$159.31	\$13.28	
72	67	Regular - Color may vary	Fiberglass	22	A	Custom	\$725.63	\$69.58	\$5.80	
73	68	Regular - Color may vary	Fiberglass	35	A	Custom	\$1,193.04	\$114.39	\$9.53	
74	69	Non-fluted Techtira Ornamental	Aluminum	18	A	Custom	\$3,209.51	\$306.88	\$25.57	
75	70	Davit with 8-foot Arm	Aluminum	40	A	Custom	\$2,713.20	\$260.15	\$21.68	
76	71	Fluted Victorian Ornamental	Aluminum	14	B	Custom				\$0.37
77	72	Fluted Ornamental	Aluminum	16	B	Custom				\$0.38
78	73	Regular - Color may vary	Fiberglass	22	B	Custom				\$0.17
79	74	Regular - Color may vary	Fiberglass	35	B	Custom				\$0.27
80	75	Non-fluted Techtira Ornamental	Aluminum	18	B	Custom				\$0.73
81	76	Davit with 8-foot Arm	Aluminum	40	B	Custom				\$0.62
82	77	HADCO Non-fluted Ornamental	Aluminum	16	A	Custom	\$3,401.54	\$326.15	\$27.18	
83	78	HADCO Non-fluted Ornamental	Aluminum	16	B	Custom				\$0.78
84	79	Fluted Westbrook	Aluminum	18	A	Custom	\$3,208.75	\$307.67	\$25.64	
85	80	Fluted Westbrook	Aluminum	18	B	Custom				\$0.73
86	81	Non-fluted Westbrook	Aluminum	18	A	Custom	\$3,401.54	\$326.15	\$27.18	
87	82	Non-fluted Westbrook	Aluminum	18	B	Custom				\$0.78
88	83	Smooth	Fiberglass	18	A	Custom	\$810.66	\$77.73	\$6.48	
89	84	Smooth	Fiberglass	18	B	Custom				\$0.19
90	85	Decorative Ameron	Concrete	20	A	Custom	\$3,192.95	\$306.15	\$25.51	
91	86	Decorative Ameron	Concrete	20	B	Custom				\$0.73

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF THE STATE OF OREGON**

**UE 262**

**CITY OF PORTLAND**

Direct Testimony of:

David A. Tooze

June 14, 2013

1 **Q. PLEASE STATE YOUR NAME, EMPLOYER AND BUSINESS ADDRESS?**

2 A. My name is David A. Tooze. I am currently employed as the Senior Energy Specialist for the  
3 Bureau of Planning and Sustainability at the City of Portland, Oregon. My business address  
4 is 1900 SW 4<sup>th</sup> Avenue, Suite 7100, Portland, Oregon, 97201.  
5

6 **Q. WHAT ARE THE PURPOSES OF YOUR TESTIMONY?**

7 A. The purposes of my testimony are to (i) propose the creation of two five-year Cost of Service  
8 Opt-out Tariffs for Street Lighting and (ii) to propose the creation of a five-year Cost of  
9 Service Opt-out Tariff for Traffic Signals.

10 **Q. YOU MENTION TWO COST OF SERVICE OPT-OUT TARIFFS FOR STREET**  
11 **LIGHTING. PLEASE EXPLAIN WHY TWO TARIFFS.**  
12

13 A. Portland proposes that PGE create two new schedules - a Cost of Service Opt-out tariff,  
14 Schedule 491 for street lighting systems with high pressure sodium luminaires and a  
15 Schedule 495 for street lighting systems with new technology, like Light Emitting Diodes  
16 (LEDs).  
17

18 **Q. WHY ARE FIVE-YEAR TRANSMISSION ACCESS TARIFFS NEEDED FOR**  
19 **TRAFFIC SIGNALS AND STREET LIGHTING?**

20 A. Three-year and five-year Cost of Service Opt-out tariffs (PGE's 400 series of Tariffs) do not  
21 exist for street lighting and traffic signal customers. Instead, only one-year Direct Access  
22 Tariffs are offered (Schedules 591 and 592). The City of Portland's Bureau of Transportation  
23 desires to have the option to elect three or five-year Cost of Service Opt-out. The primary  
24 motivation would be cost reduction for street lighting customers. Only under the 400 series  
25 Transmission Access Tariff offering five-year Cost of Service Opt-out is a customer relieved  
26

1 of paying Long-Term Transition Cost Adjustments (Schedule 129), with access to the full  
2 benefits of buying electricity in the competitive marketplace.

3 **Q. ARE PORTLAND'S STREET LIGHTING AND TRAFFIC SIGNAL LOADS OF**  
4 **SUFFICIENT SIZE TO BE ELIGIBLE FOR TRANSMISSION ACCESS TARIFFS?**  
5

6 A. Yes. Portland's Schedule 91 Street Lighting system uses over 40 million kilowatt-hours  
7 annually with a demand of roughly 9,000 kW. Portland's Schedule 92 Traffic Signal system  
8 uses nearly 2.4 million kWh annually with a demand of roughly 270 kW. PGE's existing  
9 Transmission Access Tariffs for Cost of Service Opt-out have a demand minimum of 200  
10 kW (see PGE Schedule 485).

11 **Q. SHOULD ALL STREET LIGHTING AND TRAFFIC SIGNAL CUSTOMERS BE**  
12 **ALLOWED ENROLLMENT ON FIVE-YEAR TRANSMISSION ACCESS TARIFFS?**  
13

14 A. Portland General Electric has varying criteria for Direct Access and Cost of Service Opt-out.  
15 For example, one-year Direct Access Street Lights under Schedule 591 has no minimum size  
16 for participation while Direct Access for Traffic Signals under Schedule 592 refers to a  
17 system size of 50 intersections. The Tariff for Large Nonresidential Cost of Service Opt  
18 Out, Schedule 485 (201-1000 kW), refers to accounts having exceeded a demand of 200 kW.  
19 When creating Cost of Service Opt-out Schedules 491 and 495 for Street Lights, eligibility  
20 should be determined by the luminaire count of the street lighting system. Portland suggests  
21 a minimum system size of 3,000 luminaires. A system of 3,000 high pressure sodium  
22 luminaries has an electrical demand of roughly 400 kW, while a system of 3,000 LED  
23 luminaires has an electrical load of roughly 200 kW. A 200 kW threshold is used by PGE in  
24 Schedule 485 for Cost of Service Opt-out participation by large nonresidential customers.  
25  
26

1 When creating Cost of Service Opt-out Schedule 492 for Traffic Signals, eligibility should  
2 continue to be based on the system's number of intersections. Portland suggests a minimum  
3 system size of 200 intersections – four times the minimum size required for participation in  
4 one-year Direct Access under Schedule 592.  
5

6 **Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND**  
7 **QUALIFICATIONS.**

8 A. I received a Bachelor of Science Degree from Oregon State University, 1974. In 1980 I  
9 joined the Pacific Power and Light Company as an Energy Conservation Specialist. Through  
10 a chain of increasing responsibility, I provided customer services under Pacific Power's  
11 Home Weatherization Program. In 1983 I began providing Account Manager services for  
12 selected commercial and industrial customers.  
13

14 In 1987 I joined the City of Portland to design and launch a new energy program targeting  
15 multifamily rentals. In 1991 I began the City Energy Challenge, Portland's internal energy  
16 efficiency program. Since then, more than 220 energy efficiency projects have been  
17 completed in office buildings, community centers, police and fire stations, water and  
18 wastewater treatment facilities and on traffic signal and street lighting systems, producing  
19 annual savings of \$5.8 million.  
20

21 Presently I am the Senior Energy Manager in the Bureau of Planning and Sustainability,  
22 responsible for energy efficiency and renewable power advances in city-owned buildings and  
23 facilities.  
24

25 /////

26 ////

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?**

2 A. Yes. I have previously submitted testimony in Oregon Public Utility Commission Dockets  
3 UE 115, UE 116, UE 179 and UE 180.

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes.  
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