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BY EMAIL, RESS AND COURIER

December 10, 2019

Ms. Christine E. Long
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Long,

EB-2018-0270 and EB-2018-0242: Hydro One Networks Inc. s.86 MAAD Applications for Orillia Power Distribution Corporation and Peterborough Distribution Inc. – Undertaking Responses

Please find attached Hydro One Network Inc., Orillia Power Distribution Corporation and Peterborough Distribution Inc.'s Undertaking Responses from the Oral Hearing in the above-referenced hearing held December 2-3, 2019.

An electronic copy of this has been filed through the Ontario Energy Board's Regulatory Electronic Submission System (RESS).

Sincerely,

ORIGINAL SIGNED BY JOANNE RICHARDSON

Joanne Richardson

UNDERTAKING – J1.2

Reference:

Undertaking:

To explain the impact of the modification of upstream facilities to reflect the load supplied by upstream, how much it reduces the costs allocated to PDI and OPDC.

Response:

The factor used to allocate upstream distribution facilities to PDI is shown in EB-2018-0242 interrogatory I-01-48, Attachment 2, Tab 4.5. As shown in the interrogatory response, 49% of PDI’s electricity needs are estimated to be supplied through upstream Hydro One distribution facilities. Application of the upstream distribution factor reduces the upstream assets allocated to PDI, which in turn reduces the total costs allocated to PDI as shown in the table below.

	Rate Class		
	Residential (AUR)	GS < 50kW (AUGe)	GS > 50 Kw (AUGd)
Total Allocated Costs with upstream facility adjustment*	\$ 14,111,869	\$ 4,077,833	\$ 4,806,102
Total Allocated Costs without upstream facility adjustment	\$ 14,740,785	\$ 4,221,261	\$ 5,000,162
Reduction from upstream facility adjustment (\$)	\$ (628,916)	\$ (143,429)	\$ (194,060)
Reduction from upstream facility adjustment (%)	-4.3%	-3.4%	-3.9%

* As shown in the 2030 Cost Allocation Model provided in EB-2018-0242 Interrogatory Response I-01-48, Attachment 3, Worksheet O1.

The derivation of the OPDC upstream distribution factor is shown in EB-2018-0270 interrogatory I-01-09, Attachment 2, Tab 4.5. As shown in the interrogatory response, OPDC’s electricity needs are entirely supplied through upstream Hydro One distribution facilities, so there is no adjustment required to the allocation of upstream distribution assets and therefore no impact on the total costs allocated to OPDC.

UNDERTAKING – J1.3

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3 **Reference:**
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5 **Undertaking:**

6 To provide an estimate for the impact of costs allocated to customer classes.
7

8 **Response:**

9 Based on the discussion that took place at the oral hearing in advance of this undertaking,
10 Hydro One understands the undertaking was to provide an estimate of the impact on costs
11 allocated to the acquired customers as a result of including them in Hydro One's urban
12 legacy classes instead of creating separate acquired rate classes.
13

14 In order to estimate the impact of including OPDC acquired customers in the legacy
15 urban classes, Hydro One has compared the results from a 2030 Cost Allocation Model
16 (CAM) run that excludes all OPDC CAM inputs (see Attachment 1) against a CAM run
17 where OPDC customers are included in Hydro One's legacy urban classes (see
18 Attachment 2).
19

20 The gross fixed assets in USofAs 1815-1860 and the revenue requirement allocated to the
21 proposed OPDC rate classes under Hydro One's proposal to create new acquired classes
22 are compared to the corresponding costs associated with OPDC customers when they are
23 included in Hydro One's legacy urban rate classes.
24

25 Table 1 illustrates that including OPDC customers in Hydro One's legacy urban classes
26 results in an over-allocation of \$71.4M more in local assets associated with serving the
27 OPDC customers within the urban classes, as compared to Hydro One's proposal to
28 create separate acquired classes and use direct allocation adjustment factors to identify
29 the local assets known to be required to serve the OPDC customers.

1 **Table 1: Impact on Allocation of Local Gross Fixed Assets (USofAs 1815-1860) by**
 2 **Including OPDC Customers in Legacy Urban Classes (in Million \$)**

		Hydro One Urban Residential (UR)	Hydro One Urban GS<50kW (UGe)	Hydro One Urban GS>50kW (UGd)	Total (UR, UGe, UGd)
A	GFA of Hydro One legacy rate classes without OPDC (Note 1)	\$963.5	\$274.6	\$403.4	\$1,641.4
B	GFA including OPDC in Hydro One's legacy urban rate classes (Note 2)	\$1,008.3	\$298.2	\$470.5	\$1,777.1
C=B-A	GFA associated with OPDC customers when included in Hydro One's legacy urban rate classes	\$44.8	\$23.7	\$67.2	\$135.6
		OPDC Residential (AUR)	OPDC GS<50kW (AUGe)	OPDC GS>50kW AUGd	Total (AUR, AUGe, AUGd)
D	GFA allocated to proposed OPDC Acquired Rate Classes (Note 3)	\$35.1	\$12.3	\$16.8	\$64.3
C-D	Over-allocation of GFA (USofAs 1815-1860) Assets due to OPDC customers being in urban legacy classes	\$9.7	\$11.3	\$50.3	\$71.4
	Over-allocation Compared to Hydro One's Proposal (%)	28%	92%	299%	111%

Note 1: Per sheet O4 of Attachment 1

Note 2: Per sheet O4 of Attachment 2

Note 3: Per interrogatory response EB-2018-0270 Exhibit I, Tab 1, Schedule 9 Attachment 2 Worksheet 5

3

4 Table 2 illustrates that if OPDC customers were merged into Hydro One's legacy urban
 5 rate classes there would be an over-allocation of \$5.0M in total revenue requirement to
 6 the urban classes that include both legacy and acquired customers, as compared to Hydro
 7 One's proposal to create separate acquired classes that more accurately reflect the cost to
 8 serve OPDC residential and general service customers.

9

10 **Table 2: Impact on Allocation of Revenue Requirement by Including OPDC**
 11 **Customers in Legacy Urban Classes (in Million \$)**

		Hydro One Urban Residential (UR)	Hydro One Urban GS<50kW (UGe)	Hydro One Urban GS>50kW (UGd)	Total (UR, UGe, UGd)
A	Revenue Requirement of Hydro One legacy rate classes without OPDC (Note 1)	\$121.8	\$30.1	\$39.5	\$191.4
B	Revenue Requirement including OPDC in Hydro One's legacy urban rate classes (Note 2)	\$127.3	\$32.7	\$46.0	\$206.0
C=B-A	Revenue Requirement associated with OPDC customers when included in Hydro One's legacy urban rate classes	\$5.6	\$2.5	\$6.4	\$14.5
		OPDC Residential (AUR)	OPDC GS<50kW (AUGe)	OPDC GS>50kW AUGd	Total (AUR, AUGe, AUGd)
D	Revenue Requirement allocated to proposed OPDC Acquired Rate Classes (Note 3)	\$5.4	\$1.7	\$2.5	\$9.6
C-D	Over-allocation of Revenue Requirement due to OPDC customers being in urban legacy classes	\$0.2	\$0.8	\$4.0	\$5.0
	Over-allocation Compared to Hydro One's Proposal (%)	4%	45%	161%	52%

Note 1: Per sheet O1 of Attachment 1

Note 2: Per sheet O1 of Attachment 2

Note 3: Per sheet O1 of interrogatory response EB-2018-0270 Exhibit I, Tab 1, Schedule 9 Attachment 3

12 A similar analysis was done for PDI by preparing a 2030 CAM to calculate the costs to
 13 serve PDI customers when they are included in Hydro One's legacy urban classes (see

1 Attachment 3). Table 3 illustrates that \$192.3M in local assets are over-allocated to the
2 urban classes that include both PDI and legacy customers and Table 4 illustrates that
3 \$13.6M in total revenue requirement is over-allocated to the urban classes that include
4 both PDI and legacy customers.

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Table 3: Impact on Allocation of Local Gross Fixed Assets (USofAs 1815-1860) by Including PDI Customers in Legacy Urban Classes (in Million \$)

		Hydro One Urban Residential (UR)	Hydro One Urban GS<50kW (UGe)	Hydro One Urban GS>50kW (UGd)	Total (UR, UGe, UGd)
A	GFA of Hydro One legacy rate classes without PDI (Note 1)	\$963.5	\$274.6	\$403.4	\$1,641.4
B	GFA including PDI in Hydro One's legacy urban rate classes (Note 2)	\$1,084.1	\$344.1	\$554.4	\$1,982.5
C=B-A	GFA associated with PDI customers when included in Hydro One's legacy urban rate classes	\$120.6	\$69.5	\$151.0	\$341.1
		PDI Residential (AUR)	PDI GS<50kW (AUGe)	PDI GS>50kW (AUGd)	Total (AUR, AUGe, AUGd)
D	GFA allocated to proposed PDI Acquired Rate Classes (Note 3)	\$93.3	\$25.8	\$29.6	\$148.8
C-D	Over-allocation of GFA (USofAs 1815-1860) Assets due to PDI customers being in urban legacy classes	\$27.2	\$43.6	\$121.4	\$192.3
	Over-allocation Compared to Hydro One's Proposal (%)	29%	169%	410%	129%

Note 1: Per sheet O4 of Attachment 1

Note 2: Per sheet O4 of Attachment 3

Note 3: Per interrogatory response EB-2018-0242 Exhibit I, Tab 1, Schedule 48 Attachment 2 Worksheet 5

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Table 4: Impact on Allocation of Revenue Requirement by Including PDI Customers in Legacy Urban Classes (in Million \$)

		Hydro One Urban Residential (UR)	Hydro One Urban GS<50kW (UGe)	Hydro One Urban GS>50kW (UGd)	Total (UR, UGe, UGd)
A	Revenue Requirement of Hydro One legacy rate classes without PDI (Note 1)	\$121.8	\$30.1	\$39.5	\$191.4
B	Revenue Requirement including PDI in Hydro One's legacy urban rate classes (Note 2)	\$136.5	\$37.5	\$54.0	\$228.0
C=B-A	Revenue Requirement associated with PDI customers when included in Hydro One's legacy urban rate classes	\$14.8	\$7.4	\$14.4	\$36.6
		PDI Residential (AUR)	PDI GS<50kW (AUGe)	PDI GS>50kW (AUGd)	Total (AUR, AUGe, AUGd)
D	Revenue Requirement allocated to proposed PDI Acquired Rate Classes (Note 3)	\$14.1	\$4.1	\$4.8	\$23.0
C-D	Over-allocation of Revenue Requirement due to PDI customers being in urban legacy classes	\$0.7	\$3.3	\$9.6	\$13.6
	Over-allocation Compared to Hydro One's Proposal (%)	5%	80%	200%	59%

Note 1: Per sheet O1 of Attachment 1

Note 2: Per sheet O1 of Attachment 3

Note 3: Per sheet O1 of interrogatory response EB-2018-0242 Exhibit I, Tab 1, Schedule 48 Attachment 3

11 As shown in Tables 1 to 4, the over-allocation of assets and cost to the urban classes that
12 include OPDC and PDI general service demand-billed customers is notably larger as a
13 result of applying Hydro One's minimum system and PLCC adjustments when the

1 acquired customers are included in the legacy classes versus using the OPDC and PDI
2 minimum system and PLCC values that are implicitly captured by applying the proposed
3 direct allocation adjustment factors to each acquired utility rate class.

4

5 The following 2030 CAMs are provided as Attachments to this response:

- 6 • Attachment 1: 2030 CAM including Hydro One legacy rate classes only
- 7 • Attachment 2: 2030 CAM including OPDC customers in Hydro One's legacy
8 urban rate classes
- 9 • Attachment 3: 2030 CAM including PDI customers in Hydro One's legacy urban
10 rate classes

UNDERTAKING – J1.4

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3 **Reference:**
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5 **Undertaking:**

6 To describe precisely the adjustment factors in the E2 allocator.
7

8 **Response:**

9 The direct allocation adjustment factors applied to the gross fixed assets (GFA) in
10 USofAs 1815 to 1860 are shown in row 438, columns Q to S of the cost allocation
11 models filed as Attachment 3 to interrogatory response Exhibit I, Tab 1, Schedule 9 (EB-
12 2018-0270) and Exhibit I, Tab 1, Schedule 48 (EB-2018-0242), for OPDC and PDI
13 respectively.
14

15 In the section immediately below row 438 (i.e. rows 439 to 507) in the CAM Worksheet
16 E2, the direct allocation adjustment factors are applied to determine the GFA in USofAs
17 1815 to 1860 that should be directly allocated to each acquired rate class , and to
18 reallocate the remaining GFA amounts to Hydro One's legacy rate classes. These
19 adjusted GFA costs are used to calculate the USofA-based demand allocators (rows 55-
20 68) and customer allocators (rows 97-100) that drive the allocation of the majority of all
21 other OM&A costs in the CAM.
22

23 The direct allocation adjustment factors applied to net fixed assets (NFA and NFA-ECC)
24 are shown in rows 514, columns Q to S. The application of these adjustment factors to
25 determine the directly allocated NFA and NFA-ECC amounts is shown in rows 515-525.
26 These adjusted NFA and NFA-ECC amounts are used to calculate the allocators shown in
27 rows 113-114, which drive the allocation of all asset related costs in the CAM.
28

29 The calculation of the adjusted depreciation costs in USofA 5705 is provided in Tab 7 of
30 Attachment 2 to interrogatory response Exhibit I, Tab 1, Schedule 9 (EB-2018-0270) and
31 Exhibit I, Tab 1, Schedule 48 (EB-2018-0242), for OPDC and PDI respectively. The
32 adjusted depreciation costs used within the CAM are shown in Worksheet O4, row 216.

Table 1: 2019 Total Monthly Bill for a Typical Residential Customer (Peterborough)						
	2019 (per I-02-43 in EB-2018-0242)			2019 (per OEB Bill Calculator)		
	Volume	Rates	Charges (\$)	Volume	Rates	Charges (\$)
Monthly Consumption (kWh)	750			750		
Total Loss Factors	1.0548			1.0548		
TOU - Off Peak Consumption	488	0.065	\$31.69	488	0.101	\$49.24
TOU - Mid Peak Consumption	128	0.094	\$11.99	128	0.144	\$18.36
TOU - On Peak Consumption	135	0.134	\$18.09	135	0.208	\$28.08
Total: Commodity			\$61.76			\$95.68
DX Fixed Charge (\$)	1	22.62	\$22.62	1	22.62	\$22.62
DX Vol. Charge (\$/kWh)	750	0.0000	\$0.00	750	0.0000	\$0.00
DX Low Voltage Charge (\$/kWh)	750	0.0010	\$0.75	750	0.0010	\$0.75
Distribution Base Rates Only			\$23.37			\$23.37
Smart Meter Entity Charge (\$)	1	0.57	\$0.57	1	0.57	\$0.57
Cost of Losses (\$/kWh)	41	0.0824	\$3.38	41	0.1276	\$5.24
Distribution Pass-through Charges			\$3.95			\$5.81
Total: Distribution			\$27.32			\$29.18
TX-Network (\$/kWh)	791	0.0067	\$5.30	791	0.0067	\$5.30
TX-Connection (\$/kWh)	791	0.0055	\$4.35	791	0.0055	\$4.35
Total: Transmission			\$9.65			\$9.65
WMSC (\$/kWh)	791	0.0034	\$2.69	791	0.0034	\$2.69
RRRP (\$/kWh)	791	0.0005	\$0.40	791	0.0005	\$0.40
SSA (\$)	1	0.25	\$0.25	1	0.25	\$0.25
Total: Regulatory			\$3.34			\$3.34
Total Bill (Before Taxes)			\$102.07			\$137.85
HST		13%	\$13.27		13%	\$17.92
OREC/OER		-8%	-\$8.17		-31.8%	-\$43.84
Total Bill (Including HST & OREC)			\$107.18			\$111.93

Table 2: 2019 Total Monthly Bill for a Typical Residential Customer (Orillia)						
	2019 (per I-01-11 in EB-2018-0270)			2019 (per OEB Bill Calculator)		
	Volume	Rates	Charges (\$)	Volume	Rates	Charges (\$)
Monthly Consumption (kWh)	750			750		
Total Loss Factors	1.0561			1.0561		
TOU - Off Peak Consumption	488	0.065	\$31.69	488	0.101	\$49.24
TOU - Mid Peak Consumption	128	0.094	\$11.99	128	0.144	\$18.36
TOU - On Peak Consumption	135	0.134	\$18.09	135	0.208	\$28.08
Total: Commodity			\$61.76			\$95.68
DX Fixed Charge (\$)	1	27.93	\$27.93	1	27.93	\$27.93
DX Fixed Charge Rate Riders (\$)*	1	2.56	\$2.56	1	2.49	\$2.49
DX Vol. Charge (\$/kWh)	750	0.0000	\$0.00	750	0.0000	\$0.00
DX Low Voltage Charge (\$/kWh)	750	0.0006	\$0.45	750	0.0006	\$0.45
Distribution Base Rates Only			\$30.94			\$30.87
Smart Meter Entity Charge (\$)	1	0.57	\$0.57	1	0.57	\$0.57
Cost of Losses (\$/kWh)	42	0.0824	\$3.46	42	0.1276	\$5.37
Distribution Pass-through Charges			\$4.03			\$5.94
Total: Distribution			\$34.97			\$36.81
TX-Network (\$/kWh)	792	0.0050	\$3.96	792	0.0050	\$3.96
TX-Connection (\$/kWh)	792	0.0039	\$3.09	792	0.0039	\$3.09
Total: Transmission			\$7.05			\$7.05
WMSC (\$/kWh)	792	0.0034	\$2.69	792	0.0034	\$2.69
RRRP (\$/kWh)	792	0.0005	\$0.40	792	0.0005	\$0.40
SSA (\$)	1	0.25	\$0.25	1	0.25	\$0.25
Total: Regulatory			\$3.34			\$3.34
Total Bill (Before Taxes)			\$107.13			\$142.87
HST		13%	\$13.93		13%	\$18.57
OREC/OER		-8%	-\$8.57		-31.8%	-\$45.43
Total Bill (Including HST & OREC)			\$112.48			\$116.01

* Hydro One only included rate riders that would have an impact on future distribution revenue requirement (fixed rate rider for Application of Tax Change (-\$0.07/month) was excluded in Hydro One's calculations)

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Table 1 – Status Quo CAGR as Separate Utilities

Utility	2019 Base Revenue Requirement (\$)	2030 Base Revenue Requirement (\$)	Change (\$)	Change (%)	Average Annual Change (%)	Compound Annual Growth Rate (%)
OPDC	8,859,135 ¹	\$14,448,364 ¹	\$5,589,229	63%	5.74%	4.55%
PDI	17,168,906 ²	\$26,324,000 ²	\$9,155,094	53%	4.85%	3.96%
Hydro One	1,497,859,890 ²	\$1,909,692,763 ²	\$411,832,873	27%	2.50%	2.23%
Sum of Separate Utilities (OPDC, PDI, Hydro One) (w/o consolidation)	1,523,887,931	\$1,950,465,127	\$426,577,196	28%	2.54%	2.27%

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¹EB-2018-0270 – Exhibit I, Tab 1, Schedule 12

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²EB-2018-0242 - Exhibit I, Tab 2, Schedule 44

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Table 2 – Industry Perspective: Consolidation or Separate Utilities

Sum of Separate Utilities – 2019 Base Revenue Requirement	Sum of Separate Utilities – 2030 Base Revenue Requirement	Compound Annual Growth Rate Relative to 2019	Sum of Consolidated Utility – 2030 Base Revenue Requirement (\$)	Compound Annual Growth Rate Relative to 2019	Reduction in Industry 2030 Base Revenue Requirement (\$)
\$1,523,887,931	\$1,950,465,127	2.27%	\$1,934,898,915 ¹	2.19%	\$15,566,212

¹ EB-2018-0270 – Exhibit I, Tab 1, Schedule 12 and EB-2018-0242 - Exhibit I, Tab 2, Schedule 44

Source: Adapted from EB-2018-0242, Attachment 19, page 1 of 1						OEB Staff Calculations					
Utility (2018 Approvals)	Application	Base Revenue Requirement, 2018 Approval (\$)	Base Revenue Requirement, Last Approval (\$)	Change (\$)	Change (%)	Average Annual Change (%)	Compound Annual Growth Rate (%)	2018 Approval Year	Last Approval Year	# of years	
Centre Wellington	EB-2017-0032	3,665,637	3,023,099	642,538	21.3%	4.3%	3.93%	2018	2013	5	
Cooperative Hydro Embrun Inc.	EB-2017-0035	1,067,336	858,144	209,192	24.4%	6.1%	5.61%	2018	2014	4	
Essex	EB-2017-0039	12,351,144	11,208,453	1,142,691	10.2%	1.3%	1.22%	2018	2010	8	
Hydro Hawkesbury	EB-2017-0048	1,744,140	1,590,565	153,575	9.7%	2.4%	2.33%	2018	2014	4	
Westario	EB-2017-0084	10,669,547	9,631,581	1,037,966	10.8%	2.2%	2.07%	2018	2013	5	
Hydro One Networks Inc.	EB-2017-0049	1,413,008,512	1,375,254,930	37,753,583	2.7%	0.9%	0.91%	2018	2015	3	
					Average:	13.2%	2.9%	2.7%			

Source: Adapted from EB-2018-0242, Attachment 19, page 1 of 1						OEB Staff Calculations					
Utility (2017 Approvals)	Application	Base Revenue Requirement, 2017 Approval (\$)	Base Revenue Requirement, Last Approval (\$)	Change (\$)	Change (%)	Average Annual Change (%)	Compound Annual Growth Rate (%)	2017 Approval Year	Last Approval Year	# of years	
Atikokan	EB-2016-0055	1,402,256	1,232,815	169,441	13.7%	2.7%	2.61%	2017	2012	5	
Brantford	EB-2016-0058	17,098,955	15,826,563	1,272,392	8.0%	2.0%	1.95%	2017	2013	4	
CNP	EB-2016-0061	18,840,476	17,562,996	1,277,480	7.3%	1.8%	1.77%	2017	2013	4	
InnPOWER	EB-2016-0085	10,117,125	7,590,696	2,526,429	33.3%	8.3%	7.45%	2017	2013	4	
Lakefront	EB-2016-0089	4,260,112	4,039,506	220,606	5.5%	1.1%	1.07%	2017	2012	5	
London	EB-2016-0091	66,339,088	62,675,465	3,663,623	5.8%	1.5%	1.43%	2017	2013	4	
Northern Ontario	EB-2016-0096	3,411,159	2,916,654	494,505	17.0%	4.2%	3.99%	2017	2013	4	
Renfrew	EB-2016-0166	2,003,438	1,877,960	125,478	6.7%	1.0%	0.93%	2017	2010	7	
Thunder Bay	EB-2016-0105	22,770,707	19,210,613	3,560,094	18.5%	4.6%	4.34%	2017	2013	4	
Welland	EB-2016-0110	9,684,025	8,715,039	968,986	11.1%	2.8%	2.67%	2017	2013	4	
					Average:	12.7%	3.0%	2.8%			

Source: Adapted from EB-2018-0242, Attachment 19, page 1 of 1		OEB Staff Calculations	
	Change (%)	Average Annual Change (%)	Average Compound Annual Growth Rate (%)
Average of 2017 and 2018 Approvals:		13.5%	2.9%
		2.8%	

A B C D E F G H I J K L M

UNDERTAKING – J2.3

Reference:

Undertaking:

To provide the missing second column containing comparable numbers for 2018.

Response:

Hydro One has updated the table provided in the undertaking response provided in Exhibit JT2.8 Part 1, to include a column showing the 2018 actuals.

	Forecast (as filed in 2018 DRO)	Actual (2018)
OM&A	\$544,408,355	\$560,279,433
Total Number of Customers	1,303,822	1,302,710
UR	227,025	227,142
R1	447,465	448,984
R2	328,479	328,485
Seasonal	147,679	145,964
GSe	87,902	87,960
GSd	5,239	5,290
UGe	18,000	17,984
UGd	1,735	1,736
St Lgt*	21,581	20,846
Sen Lgt*	11,301	10,938
USL	5,490	5,484
Dgen	1,119	1,092
ST	807	805

**Number of connections used for cost allocation purposes.*

