Q. **Volume III (3rd Revision), Exhibit 14: 2018 Test Year Cost of Service Study**

Please provide detailed calculations for each line item in Column 5, Transmission Demand, and Column 18, Specifically Assigned Customer. (Volume III (3rd Revision), Exhibit 14: 2018 Test Year Cost of Service Study, Schedule 2.4A, Page 1 of 2)

A. Schedule 2.4A provides the functional classification of operating and maintenance (O&M) expense on the Island Interconnected System for the 2018 Test Year.

Column 5 on this schedule provides the Operating and Maintenance (O&M) expense functionalized as transmission common and column 18 on this schedule provides the O&M expense functionalized as specifically assigned transmission. The O&M costs determined to be Specifically Assigned through the cost of service methodology are a component[1] in the determination of the total Specifically Assigned charges which apply to Island Industrial Customers for which the specifically assigned assets provide service.[2]

In order to derive the amount of direct O&M to be sub-functionalized between transmission common[3] and Specifically Assigned transmission assets, the total O&M costs determined for transmission and terminal station from Hydro's business units is allocated across all functions served by these business units. These include

[1] There are three components that can comprise specifically assigned charges: O&M, depreciation and return. When the customer has fully funded the asset through a contribution, the O&M is the only component of the specifically assigned charge.
[2] As there is no specifically assigned charge for Newfoundland Power, Newfoundland Power's specifically assigned costs are recovered through their energy charges.
[3] Transmission common is referred to as Transmission demand in Schedule 2.4A.

production demand and energy,[4] rural production and transmission, rural distribution, and accounting. The allocation of direct transmission O&M to these functions is based on the original cost method, which uses the portion of the total original cost of assets within the function to the total original cost of the larger asset group.

A comparable approach is followed in functionalizing Administrative and General operating expenses from each business unit grouping across function based on original costs. The use of functionalization based original asset costs has been approved by the Board and is consistent with the way Hydro has functionalized O&M for the Island Interconnected System in the past.

Once this exercise is complete, the portion of the total transmission (see Table 1, Column 8) O&M which needs to be sub-functionalized between transmission common and specifically assigned has been isolated, as shown in Table 1.

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[4] Some transmission assets in service are functionalized as generation as they primarily serve the purpose of interconnecting hydraulic generation assets to the bulk grid.

Table 1 Determination of Transmission Operating and Maintenance Expense to be Sub-Functionalized between Transmission Common and Specifically Assigned (2018TY)

1	2	3	4	5	6	7	8
	Total O&M	**Production Demand**	**Production Energy**	**Rural Transmission**	**Rural Distribution**	**Accounting**	**Transmission O&M**
Direct O&M Expense							
Transmission Lines	3,334,387	134,894	160,904	519,250	-	-	**2,519,338**
Terminal Stations	4,482,082	438,946	411,630	326,032	195,152	-	**3,110,322**
Other	2,253,167	135,481	142,341	286,877	33,579	-	**1,654,888**
Total Directly Assigned O&M	**10,069,635**	**709,321**	**714,875**	**1,132,159**	**228,731**	-	**7,284,548**
Administrative & General							
Plant-Related							
Production	6,461,496	3,739,501	2,721,994	-	-	-	-
Production, GT & Diesel	1,122,329	1,122,329	-	-	-	-	-
Transmission	3,530,337	212,276	223,025	449,488	52,613	-	**2,592,935**
Distribution	1,671,105	-	-	-	1,671,105	-	**-**
Production, Transmission, Distribution and General Plant	153,722	53,835	39,102	6,908	13,554	355	**39,968**
Production, Transmission, Distribution, excluding Hydraulic and Holyrood	1,144,832	209,138	50,978	102,742	189,295	-	**592,680**
Property Insurance	1,956,692	947,388	676,435	27,709	47,699	6,412	**251,051**
All Expense-Related	26,380,008	12,507,697	6,127,299	491,439	3,135,409	956,141	**3,162,023**
Production, Transmission and Distribution Expense-Related	1,512,232	743,968	364,457	29,231	186,497	-	**188,080**
Total Administrative & General	**43,932,753**[5]	**19,536,133**	**10,203,290**	**1,107,517**	**5,296,171**	**962,907**	**6,826,736**

The next step is the sub-functionalization of the transmission O&M into two separate categories; transmission common and specifically assigned. To determine the allocation of the transmission O&M between transmission common assets and specifically assigned assets, Hydro proposed to use asset values stated in 2018 dollars based on the Handy Whitman index.

[5] The total differs from the Cost of Service, Schedule 2.4A as Municipal Tax and PUB Assessment costs are not allocated within this schedule and therefore have been excluded in the illustration.

Total per Table 1	$43,932,753
Municipal Tax	$1,286,578
PUB Assessment	$1,041,343
Total per Schedule 2.4A	$46,260,674

The steps involved in indexing the existing original cost asset values to 2018 dollars were as follows:

1. Hydro summarized historical asset costs for all individual asset records by system, function, class, customer, and in-service date as at December 31, 2018, and calculated the average of the 2017 and 2018 closing balances, consistent with the 2018 Cost of Service Study methodology.[6]
2. Hydro categorized asset values by in-service date and class in order to apply Handy-Whitman or GDP indexes.

Table 2 shows the resulting asset average balances once Handy-Whitman indexes were applied. It also shows the indexed balances of the specifically assigned assets as a numerical value and as a percentage of the total asset balances.

Table 2 Derivation of Specifically Assigned Allocation (2018TY)

	Total Indexed Asset Values ($ millions)	Specifically Assigned ($ millions)	Specifically Assigned (%)
Transmission Lines	1,388.0	93.5	6.7%
Terminal Stations	813.4	82.5	10.1%
Total Transmission and Terminals	**2,201.4**	**176.0**	**8.0%**

The percentages derived in Table 2 represent the portion of the total transmission line and terminal station assets which are related to specifically assigned assets based on the analysis performed on indexed values. Hydro applied these percentages to the transmission O&M values from column 8 in Table 1 to determine the sub-functionalization of transmission O&M between transmission common and specifically assigned assets.

[6] For the 2018 Test Year, Hydro's data includes actual values from 1956 to 2016, and forecast values for 2017 to 2018.

To determine the sub-functionalization of Other[7] transmission expenses and Administrative and General expenses between transmission common and specifically assigned, Hydro applied the overall indexed cost percentage of transmission and terminals (8.0% specifically assigned).

Table 3 provides summary of the sub-functionalization of transmission O&M between specifically assigned and transmission common.

Table 3 Sub-Functionalization of Transmission O&M Between Specifically Assigned and Transmission Common (2018TY)

	Total Transmission O&M	Specifically Assigned		Transmission Common	
	$	%	$	%	$
Direct O&M Expense					
Transmission Lines	2,519,338	6.7	169,631	93.3	2,349,707
Transmission Stations	3,110,322	10.1	315,552	89.9	2,794,770
Other	1,654,888	8.0	132,291	92.0	1,522,598
Total Directly Assigned O&M	**7,284,548**		**617,474**		**6,667,075**
Total Administrative & General	**6,826,735**	8.0	**545,724**	92.0	**6,281,011**

[7] The "Other" category includes a portion of operating expenses related to various business units, including System Operations, Environmental Services, Properties, Civil Engineering, Electrical Engineering, Mechanical Engineering, T&D Engineering, and P&C Engineering.