

Subject: Using TSC Summary and Detail Tables to Estimate Transmission Service Charges

Statement: Distribution Factor tables are posted on the Open Access Same-Time Information System (OASIS) to allow participants to estimate the Transmission Service Charges (TSCs) that will apply to Export and Wheel-Through transactions.

Details:

To determine the applicable TSCs for Exports and Wheel-Through transactions, the NYISO conducts certain power flow analysis to identify the portion of a given transaction that is expected to flow over each of the transmission facilities composing certain Interfaces between the NYCA and adjacent Control Areas. These values are determined using an “all-facilities in-service” system representation for the power flow modeling. The portion of flow over a given facility for a transaction is referred to as a distribution factor (Dfax). The applicable Dfax values are determined based on modeling a 1 MW injection at an electrically representative Point of Injection for the transaction and an equivalent withdrawal at an electrically representative Point of Withdrawal for the transaction.

The electrically representative Point of Injection for a transaction is defined as follows:

- For Wheel-Through transactions, it is the Proxy Bus node that is the source for the transaction.
- For Export transactions served using energy purchased from the LBMP market, it is the NYISO Reference Bus.
- For Export bilateral transactions, it is a surrogate generator bus for the transaction’s source generator. Surrogate generators are defined for different regions of the New York Control Area. The number and location of surrogate generators, and the region to which each surrogate generator applies, may be modified over time as changes to the network model necessitate.

The electrically representative Point of Withdrawal for a transaction is defined as the Proxy Bus node at which the transaction sinks.

Market Participants who wish to estimate the TSCs that will apply to an export transaction or to a wheel-through transaction can use information posted on the NYISO Website to perform the necessary calculations.

Finding the TSC information

The TSC and Distribution Factor information can be found by performing the following actions:

1. Access the NYISO Web site at <http://www.nyiso.com>
2. Select “Markets” at the top of the page.
3. From below the “Markets” menu option, select “Energy Market & Operational Data” and then select “Reports & Info.”
4. Once on the “Reports & Info” page, locate the section titled “Links” in the middle of the page. Within the “Links” section locate the “General Information” list of links. Select the link titled, “External Transaction TSC – Summary & Detail.”

5. Select the Transmission Service Charge Summary or the Transmission Service Charge Details based on the effective date. Either the Summary or the Details can be used to estimate the applicable charges.
6. Either the Transmission Service Charge Summary table or the Transmission Service Charge Detail table may be downloaded. The tables can be downloaded in CSV format, which can be imported directly into a spreadsheet for use by the Market Participant.

Example Calculations Using Summary Tables

The following examples show how TSCs are calculated using the Transmission Service Charge Summary table. Figure 1 below represents a portion of a Transmission Service Charge Summary table.

The TSC cost (per MWh) for any given transaction is an amount that is equivalent to a weighted average of the applicable TSC rate in effect for each TO, with the weight used for each TO in this calculation proportional to the sum of the Dfax values determined for the transaction as applicable to each of the transmission facilities owned by that TO, composing certain Interfaces between the NYCA and adjacent Control Areas.

Figure 1: Transmission Service Charge Summary Table

	A	B	C	D	E	F	G	H	I
1		On Peak	Off Peak	On Peak	Off Peak	On Peak	Off Peak	On Peak	Off Peak
2	Generator	HQ \$/Mwhr	HQ \$/Mwhr	NE \$/Mwhr	NE \$/Mwhr	OH \$/Mwhr	OH \$/Mwhr	PJM \$/Mwhr	PJM \$/Mwhr
187	HQ_GEN_WHEEL	0	0	0	0	2.87	2.87	3.77	3.77
188	HUDSON_AVE_GT_3	2.19	2.19	0	0	3.88	3.88	4.97	4.97
189	HUDSON_AVE_GT_4	2.19	2.19	0	0	3.88	3.88	4.97	4.97
190	HUDSON_AVE_GT_5	2.19	2.19	0	0	3.88	3.88	4.97	4.97
191	HUNTINGTON_RES_REC	2.19	2.19	0	0	3.63	3.63	4.78	4.78
192	HYLAND_LFGE	2.19	2.19	0	0	3	3	3.9	3.9
193	INDECK_CORINTH	2.19	2.19	0	0	3.55	3.55	4.61	4.61

Suppose a Market Participant wishes to estimate the TSC applicable to a 100 MW wheel-through transaction from a generator in Quebec to a load in PJM.

1. Find the Hydro Quebec proxy bus (HQ_GEN_WHEEL) in the left-hand column of the table.
2. Search across the row to find the appropriate on or off-peak TSC cost per hour for the PJM proxy bus (PJM \$/MWh).
3. Multiply the cost per hour in the table by the number of MW for the transaction to find the total TSC cost per hour.

$$\$3.77 / \text{MWh} \times 100\text{MW} = \$377 / \text{hour}$$

The same procedure would be used to estimate the TSC for an export transaction from a specific unit in the New York Control Area to an external load. For example, suppose the export transaction is for 40 MW from HUDSON_AV_GT_3 to a load in Ontario.

1. Find HUDSON_AV_GT_3 in the left-hand column of the table in Figure 1 above.
2. Search across the row to find the appropriate on or off-peak TSC cost per hour for the Ontario Hydro proxy bus (OH \$/MWh).
3. Multiply the cost per hour in the table by the number of MW for the transaction to find the total TSC cost per hour.

$$\$3.88 / \text{MWh} \times 40\text{MW} = \$155.20 / \text{hour}$$

Example Calculations Using Detail Tables

The following examples show how TSCs are calculated using the Transmission Service Charge Detail table. Figure 2 below represents a portion of a Transmission Service Charge Detail table.

Figure 2: Transmission Service Charge Detail Table

	A	B	C	D	E	F	G	H
1	Generator	Bus_Name	Time Period	Tie_Name	TO_Name	TO_TSC_Rate_\$/Mwhr	TSC_Cost_\$/Mwhr	Resultant_Dfax
2	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	BECK A NIAGARA PA301	NYPA	1.78	0.02	0.0127
3	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	BECK B NIAGARA PA302	NYPA	1.78	0.02	0.0126
4	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	BECK NIAGARA PA27	NYPA	1.78	0.02	0.0085
5	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	BECK PACKARD BP76	Niagara Mohawk	6.27	0.08	0.0132
6	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	BRANCHBG RAMAPO 5018	Consolidated Edison	6	0.94	0.157
7	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Clost - W.Nyack751/749/75Meter	Orange and Rockland	5.94	0	0
8	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	E.SAYRE NWAVELY 956	New York State Electric and Gas	0	0	0.017
9	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	E.TWANDA HILLSIDE 70	New York State Electric and Gas	0	0	0.0464
10	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	ERIE SO. S.RIPLEY 69	Niagara Mohawk	6.27	0.36	0.0566
11	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	HUDSON 1 FARRAGUT C3403	Consolidated Edison	6	0.35	0.0577
12	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	HUDSON 2 FARRAGUT B3402	Consolidated Edison	6	0.28	0.0473
13	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Haring Crnrs - Pearl R 45	Orange and Rockland	5.94	0	0
14	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Haring Crnrs - W. Nyack 701	Orange and Rockland	5.94	0	0
15	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Harings Corner - Burns 702	Orange and Rockland	5.94	0	0
16	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	LAUREL L GOUDEY 952	New York State Electric and Gas	0	0	0.0132
17	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	LINDENP GOETHSLN A2253	Consolidated Edison	6	0.27	0.0442
18	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	MAINESBG WATRCURE 30	New York State Electric and Gas	0	0	0.0802
19	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Montvale - Blue Hill 43	Orange and Rockland	5.94	0	0
20	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Montvale - Blue Hill 44	Orange and Rockland	5.94	0	0
21	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	Montvale - Pearl River 491	Orange and Rockland	5.94	0	0
22	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	PIERCBRK FIVEMILE 37	New York State Electric and Gas	0	0	0.0598
23	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	RECO BIAS	Orange and Rockland	5.94	0	0
24	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	S. Mahwah - Hillburn 65	Orange and Rockland	5.94	0.01	0.002
25	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	S.MAHWAH S.MAHWAH BK 258	Orange and Rockland	5.94	0.04	0.0065
26	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	S.Mahwah B - Ramapo 51	Orange and Rockland	5.94	0.03	0.0044
27	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	STLAWRNC MOSES L33P	NYPA	1.78	0.14	0.0781
28	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	STLAWRNC MOSES L34P	NYPA	1.78	0.2	0.1144
29	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	WALDWICK S.MAHWAH J3410	Consolidated Edison	6	0.48	0.0798
30	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	WALDWICK SMAHWH_B K3411	Consolidated Edison	6	0.45	0.0752
31	HQ_GEN_WHEEL	PJM_LOAD_KEystone	On Peak	WARREN FALCONER 171	Niagara Mohawk	6.27	0.08	0.0132

Suppose a Market Participant wishes to estimate the TSC applicable to a 100 MW on-peak wheel-through transaction from a generator in Quebec to a load in PJM. Each of the rows in Figure 2 represents the on - peak TSC rate for a transmission path in the NYISO transmission model between the Hydro Quebec proxy bus (HQ_GEN_WHEEL) and the PJM proxy bus (PJM_LOAD_KEystone). The number of transmission paths in the NYISO transmission model varies for different combinations of Points of Injection and Points of Withdrawal. The “TO_TSC_Rate_\$/MWh” column shows the total TSC rate for the company owning the transmission path. The “Resultant_Dfax” column indicates how the power flowing between the electrically representative Point of Injection and the electrically representative Point of Withdrawal for a given transaction splits among the various transmission paths. The “TSC_Cost_\$/MWh” column shows the amount of the applicable TSC attributable to each of the transmission paths. Notice that the sum of the thirty entries in the “Resultant_Dfax” column in Figure 2 equals 1. Also, notice that the sum of the thirty entries in the “TSC_Cost_\$/MWh” column in Figure 2 equals \$3.77, which is the same as the on-peak TSC rate between the Hydro Quebec proxy bus and the PJM proxy bus shown on the TSC Summary table in Figure 1 above.

To estimate the total TSC cost applicable to a 100 MW wheel-through transaction from a generator in Quebec to a load in PJM, a Market Participant would conduct the following:

1. Find all the entries for the Hydro Quebec proxy bus in the left-hand column of the table that are associated with the PJM proxy bus.
2. Search across each row to find the appropriate TSC cost rate for each transmission path to the PJM proxy bus (TSC_Cost_\$/MWh).

3. Multiply the TSC cost in each row of the table by the number of MW for the transaction and sum the results to find the total TSC cost per hour.

	A	B	C	D
	Transmission Path	TSC_Cost_\$/Mwhr	MW	TSC Component
2	BECK A NIAGARA PA301	0.02	100	\$2
3	BECK B NIAGARA PA302	0.02	100	\$2
4	BECK NIAGARA PA27	0.02	100	\$2
5	BECK PACKARD BP76	0.08	100	\$8
6	BRANCHBG RAMAPO 5018	0.94	100	\$94
7	Clost - W. Nyack751/749/75Meter	0	100	\$0
8	E.SAYRE NWAVERLY 956	0	100	\$0
9	E.TWANDA HILLSIDE 70	0	100	\$0
10	ERIE SO. S.RIPLEY 69	0.36	100	\$36
11	HUDSON 1 FARRAGUT C3403	0.35	100	\$35
12	HUDSON 2 FARRAGUT B3402	0.28	100	\$28
13	Haring Crnrs - Pearl R 45	0	100	\$0
14	Haring Crnrs - W. Nyack 701	0	100	\$0
15	Harings Corner - Burns 702	0	100	\$0
16	LAUREL L GOUDEY 952	0	100	\$0
17	LINDENP GOETHSLN A2253	0.27	100	\$27
18	MAINESBG WATRCURE 30	0	100	\$0
19	Montvale - Blue Hill 43	0	100	\$0
20	Montvale - Blue Hill 44	0	100	\$0
21	Montvale - Pearl River 491	0	100	\$0
22	PIERCBRK FIVEMILE 37	0	100	\$0
23	RECO BIAS	0	100	\$0
24	S. Mahwah - Hillburn 65	0.01	100	\$1
25	S.MAHWAH S.MAHWAH BK 258	0.04	100	\$4
26	S.Mahwah B - Ramapo 51	0.03	100	\$3
27	STLAWRNC MOSES L33P	0.14	100	\$14
28	STLAWRNC MOSES L34P	0.2	100	\$20
29	WALDWICK S.MAHWAH J3410	0.48	100	\$48
30	WALDWICK SMAHWH_B K3411	0.45	100	\$45
31	WARREN FALCONER 171	0.08	100	\$8
32	Total Transmission Service Charge	3.77		\$377

The same procedure would be used to estimate the TSC cost for an export transaction from a specific unit in the New York Control Area to an external load, using the Transmission Service Charge Detail table.

This Technical Bulletin is not currently expected to be incorporated into a NYISO Manual/User Guide.