




Transmission Cost Information Center Orientation




8/23/2017

- Purpose of the TCIC is to help stakeholders better understand and anticipate changes in future transmission costs
 - Centralize useful, publicly available information
 - PJM planning databases
 - PJM TEC Worksheets
 - Transmission Owner formula rate filings
 - Allow users to modify input data. Some examples include
 - Future billing month
 - Upgrade in-service dates, cost estimates, carrying charges, CWIP, etc.
 - Use generic accounting techniques and other assumptions to calculate transmission costs by zone for both the current and future month up to 10 years into the future
 - Straight-line depreciation method
 - Useful life of upgrade
 - Cost estimates

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Outline buttons can be expanded or condensed

 Transmission Cost Information Center	
Tab Descriptions	
❖ Overview & Aggregate Cost Summary Tabs	
➤ TCIC Overview	Describes the contents of the TCIC, highlights the main features of the tool that users may adjust and provides a glossary of terms along with links to relevant information.
➤ Cost Summary By Customer	Summarizes the estimated current, future and incremental monthly transmission costs by Responsible Zone for a user-selected future billing month.
➤ Cost Summary By TO	Summarizes the estimated current, future and incremental annual transmission Carrying Values, Depreciation Expenses and Revenue Requirements for each Transmission Owner for the current Rate Year and a future Rate Year based on the user-selected future billing month in the Cost Summary By
❖ Input Tabs	
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Tab Descriptions	
❖ Overview & Aggregate Cost Summary Tabs	
❖ Input Tabs	
➤ TEC WS Revenue Requirements	Provides the Annual Revenue Requirement for each RTEP Baseline and Supplemental Upgrade contained in the most current version of the PJM Transmission Enhancement Charge Settlement Worksheet. Provides inputs from the latest formula rate filing that were used to develop these Annual Revenue Requirements. These formula rate filing inputs are used in combination with the estimated in-service dates in the Upgrade Information tab to project future Annual Revenue Requirements for these upgrades.
➤ Formula Rate Filing Information	Provides default Carrying Charges and Estimated Useful Lives of the transmission facilities of each Transmission Owner; provides the start and end date of the Rate Year for each Transmission Owner.
➤ Upgrade Information	Provides information specific to each RTEP Baseline and Supplemental Upgrade such as its ID, description, projected in-service date, cost estimate, Transmission Owner, default useful life, cost allocation, etc.
➤ Network Service Peak Loads	Provides the Network Service Peak Loads and associated load-ratio-share for each PJM transmission zone. Provides the user with the ability to adjust a zone's NSPL for the future billing period.
➤ Current Planning Allocations	Provides Schedule 12 cost allocations to each Responsible Zone for each RTEP Baseline Upgrade.
➤ Future Planning Allocations	Provides Schedule 12 cost allocations to each Responsible Zone for each RTEP Baseline Upgrade; allows users to adjust the allocations in order to examine the impact of future allocation changes.
❖ Detailed Cost Summary Tabs	

Tab Descriptions	
❖ Overview & Aggregate Cost Summary Tabs	
❖ Input Tabs	
❖ Detailed Cost Summary Tabs	
<ul style="list-style-type: none"> ➤ Projected Revenue Requirements 	<p>Provides estimates of the Annual Revenue Requirement for each RTEP Baseline and Supplemental Upgrade for the current Rate Year and 10 years into the future; enables users to adjust the Annual Revenue Requirement and several other related parameters. Estimated Annual Revenue Requirements for upgrades contained within the the PJM TEC Settlement Worksheet will be based on information contained within the TEC WS Revenue Requirements tab when applicable. All other estimated upgrade Annual Revenue Requirements will be based on information contained within the Upgrade Information tab.</p>
<ul style="list-style-type: none"> ➤ Current Monthly Zonal Charges 	<p>Provides estimates of the transmission costs for each Responsible Zone for each RTEP Baseline and Supplemental Upgrade for the current month; transmission costs are displayed in both total dollars and dollars per MW.</p>
<ul style="list-style-type: none"> ➤ Future Monthly Zonal Charges 	<p>Provides estimates of the transmission costs for each Responsible Zone for each RTEP Baseline and Supplemental Upgrade for a user-defined future month; transmission costs are displayed in both total dollars and dollars per MW.</p>
<ul style="list-style-type: none"> ➤ Incr Monthly Zonal Charges 	<p>Provides estimates of the transmission cost increases for each Responsible Zone for each RTEP Baseline and Supplemental Upgrade from the current month to a user-defined future month; incremental transmission costs are displayed in both total dollars and dollars per MW.</p>

Cost Summary By Customer Tab

		A	B
1	Current Billing Date ==>		8/1/2017
2	(Updates automatically - do not change)		
3	Future Billing Date ==>		1/1/2018
4	(Must be between 08/01/2017-12/01/2027)		
-		I. Current Monthly Zonal Charges	
6	A. Transmission (\$)		
14	B. Transmission (\$/MW)		
-		II. Estimated Future Monthly Zonal Charges	
23	A. Transmission (\$)		
31	B. Transmission (\$/MW)		
-		III. Incremental Monthly Zonal Charges	
40	A. Transmission (\$)		
48	B. Transmission (\$/MW)		
56			



TEC WS Revenue Requirements Tab

TCIC Upgrade ID	July 2017 PJM TEC Worksheet			Current Rate Year	
	Upgrade ID(s)	Transmission Owner	Annual Revenue Requirement	Carrying Value (Partial Year)	CWIP (Full Year)
b2436.21	b2436.21, b2436.21	PSEG	\$5,929,235	\$23,806,051	\$23,927,668
b2436.22	b2436.22, b2436.22	PSEG	\$4,703,680	\$23,806,051	\$13,263,928
b2436.50	b2436.50	PSEG	\$4,491,168	\$0	\$50,261,443
b2436.60	b2436.60	PSEG	\$3,635,129	\$10,907,180	\$4,257,610
b2436.70	b2436.70	PSEG	\$6,726,495	\$8,126,761	\$55,639,039
b2436.81	b2436.81, b2436.81	PSEG	\$2,892,542	\$14,235,211	\$53,134
b2436.83	b2436.83, b2436.83	PSEG	\$2,892,542	\$14,235,211	\$53,134
b2436.90	b2436.90, b2436.90	PSEG	\$4,491,521	\$28,596,005	\$2,422,164
b2437.10	b2437.10	PSEG	\$4,204,465	\$25,328,064	\$1,212,870
b2437.11	b2437.11	PSEG	\$4,233,079	\$25,328,064	\$1,241,892
b2437.20	b2437.20	PSEG	\$1,729,664	\$8,126,761	\$4,472,474
b2437.21	b2437.21	PSEG	\$1,729,765	\$8,126,761	\$4,472,773
b2437.30	b2437.30	PSEG	\$6,508,436	\$36,594,637	\$15,327,955
b2436.10	b2436.10, b2436.10	PSEG	\$25,825,267	\$173,513,158	\$2,271,018
b2436.33	b2436.33	PSEG	\$9,562,390	\$8,126,761	\$103,139,173
b2436.34	b2436.34	PSEG	\$6,958,816	\$0	\$100,004,406
b2436.84	b2436.84, b2436.84	PSEG	\$3,996,678	\$20,388,838	\$11,129,698
b2436.85	b2436.85, b2436.85	PSEG	\$3,996,678	\$20,388,838	\$11,129,698
b2437.33	b2437.33	PSEG	\$942,989	\$0	\$14,065,098

TCIC Overview Cost Summary By Customer Cost Summary By TO EL05-121 Implementation Option **TEC WS Revenue Requirements** Formula Rate Filing Information Upgrade Information Network Service Peak Loads Current Planning Allo



Formula Rate Filing Information Tab

PJM Transmission Owner	PJM OATT NITS Rate Attachment	Rate Filing Type	Estimated Useful Life Of Projects (Years)	CURRENT RATE YEAR			FUTURE R	
				Carrying Charge	Rate Year Begins	Rate Year Ends	Carrying Charge	Rate Be
AEC	H-1	Formula	35	10.94%	6/1/2017	5/31/2018	10.94%	6/1
AEP	H-14 and H-20	Formula	54	14.54%	1/1/2017	12/31/2017	14.54%	1/1
APS	H-11	Stated	40	0.00%	1/1/2017	12/31/2017	0.00%	1/1
ATSI	H-21	Formula	42	18.82%	1/1/2017	12/31/2017	18.82%	1/1
BGE	H-2	Formula	44	17.83%	6/1/2017	5/31/2018	17.83%	6/1
ComEd	H-13	Formula	46	17.14%	6/1/2017	5/31/2018	17.14%	6/1
DAYTON	H-15	Stated	40	0.00%	1/1/2017	12/31/2017	0.00%	1/1
DEOK	H-22	Formula	57	17.80%	6/1/2017	5/31/2018	17.80%	6/1
DL	H-17	Formula	43	16.87%	6/1/2017	5/31/2018	16.87%	6/1
Dominion	H-16	Formula	43	12.30%	1/1/2017	12/31/2017	12.30%	1/1
DPL	H-3	Formula	35	10.65%	6/1/2017	5/31/2018	10.65%	6/1
EKPC	H-24	Formula	65	15.46%	6/1/2017	5/31/2018	15.46%	6/1
JCPL	H-4	Formula	46	12.00%	1/1/2017	12/31/2017	12.00%	1/1
LS Power	H-27	Formula	40	14.00%	1/1/2017	12/31/2017	14.00%	1/1
MAIT	H-28	Formula	44	16.28%	1/1/2017	12/31/2017	16.28%	1/1
NAEA	H-23	Stated	40	0.00%	1/1/2017	12/31/2017	0.00%	1/1
ODEC	H-3	Formula	34	15.62%	6/1/2017	5/31/2018	15.62%	6/1
PATH	H-19	Formula	40	0.00%	1/1/2017	12/31/2017	0.00%	1/1
PECO	H-7	Formula	67	18.30%	6/1/2017	5/31/2018	18.30%	6/1
PEPCO	H-9	Formula	35	14.72%	6/1/2017	5/31/2018	14.72%	6/1
PPL	H-8	Formula	42	13.29%	6/1/2017	5/31/2018	13.29%	6/1
PSEG	H-10	Formula	42	11.03%	1/1/2017	12/31/2017	11.03%	1/1
RE	H-12	Stated	40	0.00%	1/1/2017	12/31/2017	0.00%	1/1
RMU	H-25	Formula	35	37.51%	6/1/2017	5/31/2018	37.51%	6/1
TrAILCo	H-18	Formula	54	12.28%	6/1/2017	5/31/2018	12.28%	6/1
Transource	H-26	Formula	40	20.57%	1/1/2017	12/31/2017	20.57%	1/1
UGI	H-8	Formula	63	23.74%	6/1/2017	5/31/2018	23.74%	6/1

TCIC Overview Cost Summary By Customer Cost Summary By TO EL05-121 Implementation Option TEC WS Revenue Requirements **Formula Rate Filing Information** Upgrade Information Network Service Peak Loads Curre



Network Service Peak Loads Tab

Responsible Zone	Current NSPLs (MW)	Current LRS (%)	Future NSPLs (MW)	Future LRS (%)
AEC	2673.4	1.70%	2673.4	1.70%
AEP	22475.7	14.26%	22475.7	14.26%
APS	8717.2	5.53%	8717.2	5.53%
ATSI	12752.2	8.09%	12752.2	8.09%
BGE	6600.9	4.19%	6600.9	4.19%
ComEd	21174.6	13.43%	21174.6	13.43%
Dayton	3339.9	2.12%	3339.9	2.12%
DEOK	5308.1	3.37%	5308.1	3.37%
DL	2796.5	1.77%	2796.5	1.77%
Dominion	19538.1	12.39%	19538.1	12.39%
DPL	4126.8	2.62%	4126.8	2.62%
ECP	321.0	0.20%	321.0	0.20%
EKPC	2877.8	1.83%	2877.8	1.83%
HTP	320.0	0.20%	320.0	0.20%
JCPL	5954.8	3.78%	5954.8	3.78%
ME	2947.4	1.87%	2947.4	1.87%
Neptune	660.0	0.42%	660.0	0.42%
PECO	8363.9	5.30%	8363.9	5.30%
PENELEC	2909.4	1.85%	2909.4	1.85%
PEPCO	6583.6	4.18%	6583.6	4.18%
Residual	0.0	0.00%	0.0	0.00%

TEC WS Revenue Requirements Formula Rate Filing Information Upgrade Information **Network Service Peak Loads** Current Planning Allocations Future Planning Allocations



Future Planning Allocations Tab

Upgrade ID	Schedule 12 Location	Allocation Type	BGE	ComEd	Dayton	DE
b2006	Appendix	100% Violation-Based DFAX	0.00%	0.00%	0.00%	0.0
b2006.1	Appendix	100% Load Ratio Share	4.19%	13.43%	2.12%	3.3
b2006.1.1	Appendix A	50% LRS & 50% SBDFAX	10.81%	6.71%	1.06%	1.6
b2006.2	Appendix A	Single Zone	0.00%	0.00%	0.00%	0.0
b2006.2.1	Appendix A	Single Zone	0.00%	0.00%	0.00%	0.0
b2006.3	Appendix A	Single Zone	0.00%	0.00%	0.00%	0.0
b2006.4	Appendix A	Single Zone	0.00%	0.00%	0.00%	0.0
b2006.5	Appendix A	Single Zone	0.00%	0.00%	0.00%	0.0
b2007	Appendix	Single Zone	0.00%	0.00%	0.00%	0.0
b2008	Appendix	100% Violation-Based DFAX	33.05%	0.00%	0.00%	0.0
b2009	N/A	Cancelled	0.00%	0.00%	0.00%	0.0
b2010	N/A	Cancelled	0.00%	0.00%	0.00%	0.0
b2011	Appendix	Single Zone	0.00%	0.00%	0.00%	100.
b2012	N/A	Cancelled	0.00%	0.00%	0.00%	0.0
b2013	N/A	Cancelled	0.00%	0.00%	0.00%	0.0
b2014	N/A	Cancelled	0.00%	0.00%	0.00%	0.0
b2015	Appendix	100% Violation-Based DFAX	0.00%	0.00%	0.00%	0.0

Network Service Peak Loads
Current Planning Allocations
Future Planning Allocations
Projected Revenue Requirements
Current Monthly Zonal Cha

Appendix: Frequently Asked Questions

➤ **How can the user phase in a project before its scheduled in-service date?**

Inputs	
o Upgrade projected in-service date	1/1/2021
o Upgrade cost estimate	\$45,000,000
o Estimate Useful Life (years)	40
o Carrying Charge	10%
o User adds 2017 Carrying Value	\$5,000,000

Outputs	2017	2018	2019	2020	2021
o Carrying Value	\$5,000,000	\$4,875,000	\$14,503,125	\$23,931,172	\$43,875,000
o CWIP	\$0	\$10,000,000	\$10,041,667	\$10,227,604	\$0
o Depreciation Exp	\$125,000	\$125,000	\$371,875	\$613,620	\$1,125,000
o ARR	\$625,000	\$1,612,500	\$2,826,354	\$4,029,497	\$5,512,500

- For an individual upgrade:
 - Annual Revenue Requirement =
 - Annual Depreciation Expense + (Carrying Value + CWIP) x Carrying Charge
 - Annual Depreciation Expense = Cost Estimate / Useful Life
 - Carrying Value (Remaining useful value) = Cost Estimate – Accumulated Depreciation
 - Accumulated Depreciation = Annual Depreciation Expense x # Years In Service
- Carrying Charge =
 - (Total Transmission Revenue Requirement – Annual Depreciation Expenses) / Total Carrying Value

Example: Baseline Upgrade b0216, Black Oak SVC, went into service in at the end of 2007

1. Current Year (2017) TO Revenue Requirements

- Annual Revenue Requirement = Annual Depreciation Expense + Carrying Value x Carrying Charge
 - $\$5,854,481 = \$1,250,000 + \$37,500,000 \times 12.28\%$
- Annual Depreciation Expense = Cost Estimate / Useful Life
 - $\$1,250,000 = \$50,000,000 / 40 \text{ Years}$
- Carrying Value = Cost Estimate – Accumulated Depreciation
 - $\$37,500,000 = \$50,000,000 - \$12,500,000$

2. Future Year (2019) TO Revenue Requirements

- Annual Revenue Requirement = Annual Depreciation Expense + Carrying Value x Carrying Charge
 - $\$5,547,515 = \$1,250,000 + \$35,000,000 \times 12.28\%$
- Annual Depreciation Expense = Cost Estimate / Useful Life
 - $\$1,250,000 = \$50,000,000 / 40 \text{ Years}$
- Carrying Value = Cost Estimate – Accumulated Depreciation
 - $\$35,000,000 = \$50,000,000 - \$15,000,000$

3. Incremental TO Revenue Requirements & Incremental Zonal Charges

- TrAILCo Annual Revenue Requirement = $\$5,547,515 - \$5,854,481 = -\$306,966$
- TrAILCo Monthly Revenue Requirement = $-\$306,966 / 12 = -\$25,581$
- AEP Zonal Schedule 12 Allocation: 14.25%
- AEP Customer Monthly Zonal Charge Increase = $14.25\% \times -25,581 = -\$3,645$