

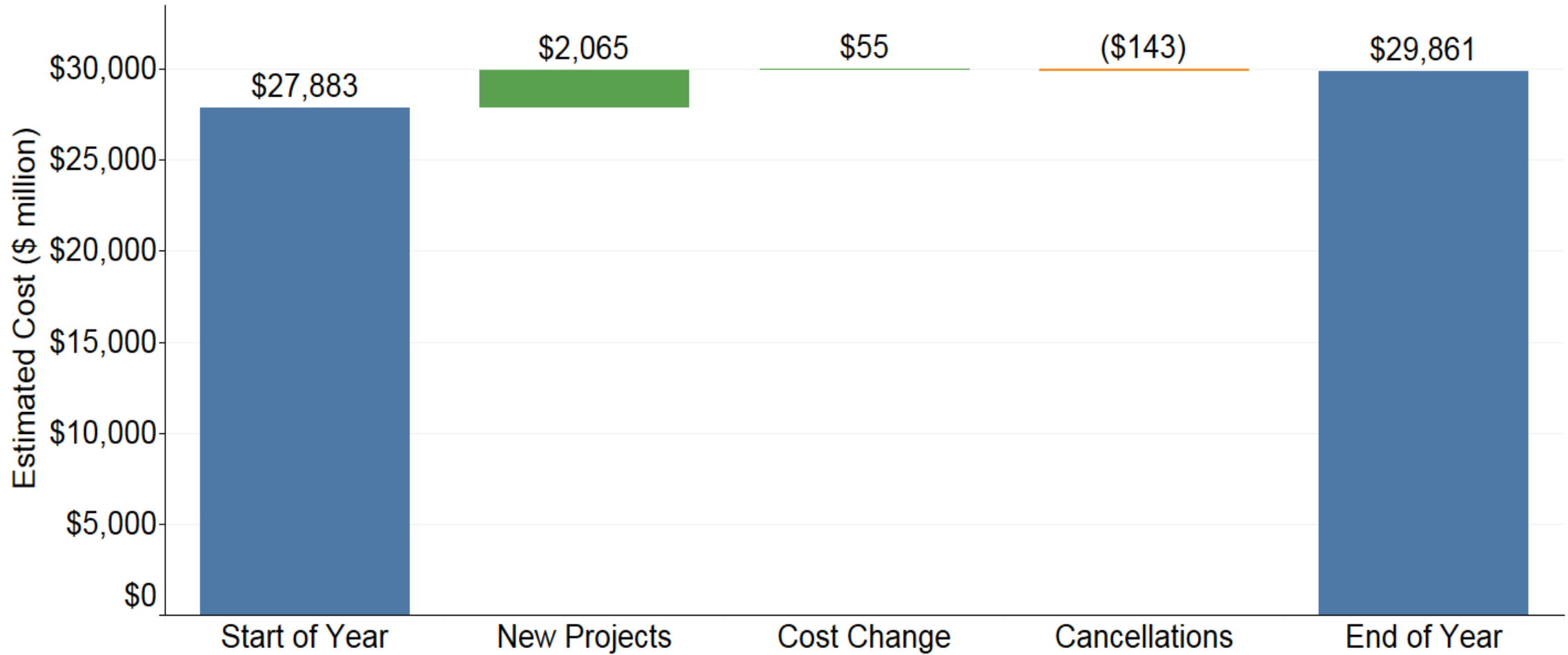


# Project Statistics

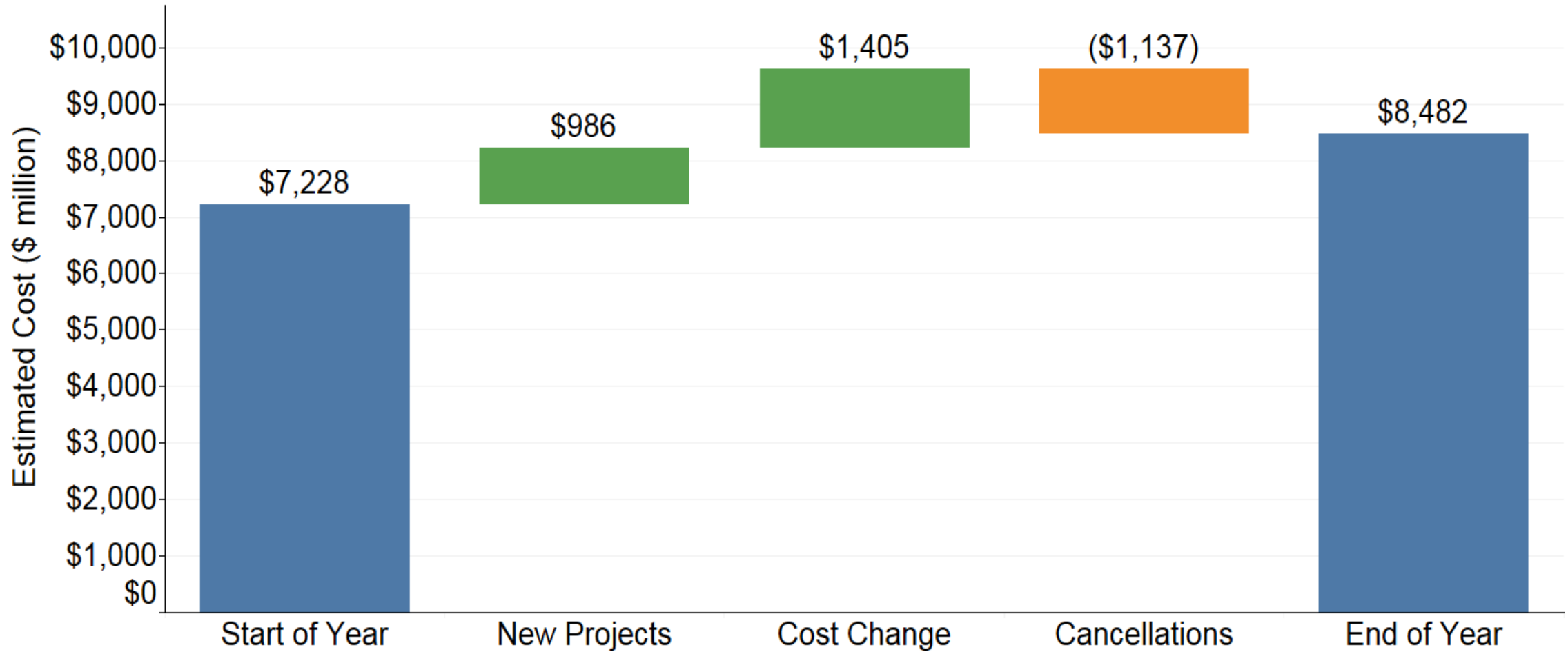
Transmission Expansion Advisory Committee  
January 10, 2019

Each slide summarizes the estimated costs for projects presented at the TEAC or Sub-regional TEAC meetings.

- Costs are provided by the Designated Entity or Transmission Owners. Cost estimation methods may vary by company. Estimated costs in this document may include cost caps or cost containment even though it isn't specifically noted
- Cost estimates may change over time as new information is known and incorporated into the estimate by the project sponsor, this document reflects the current estimates that are provided to PJM
- A single cost is provided for each project identifier, without any additional breakdown (for example, cost by state)

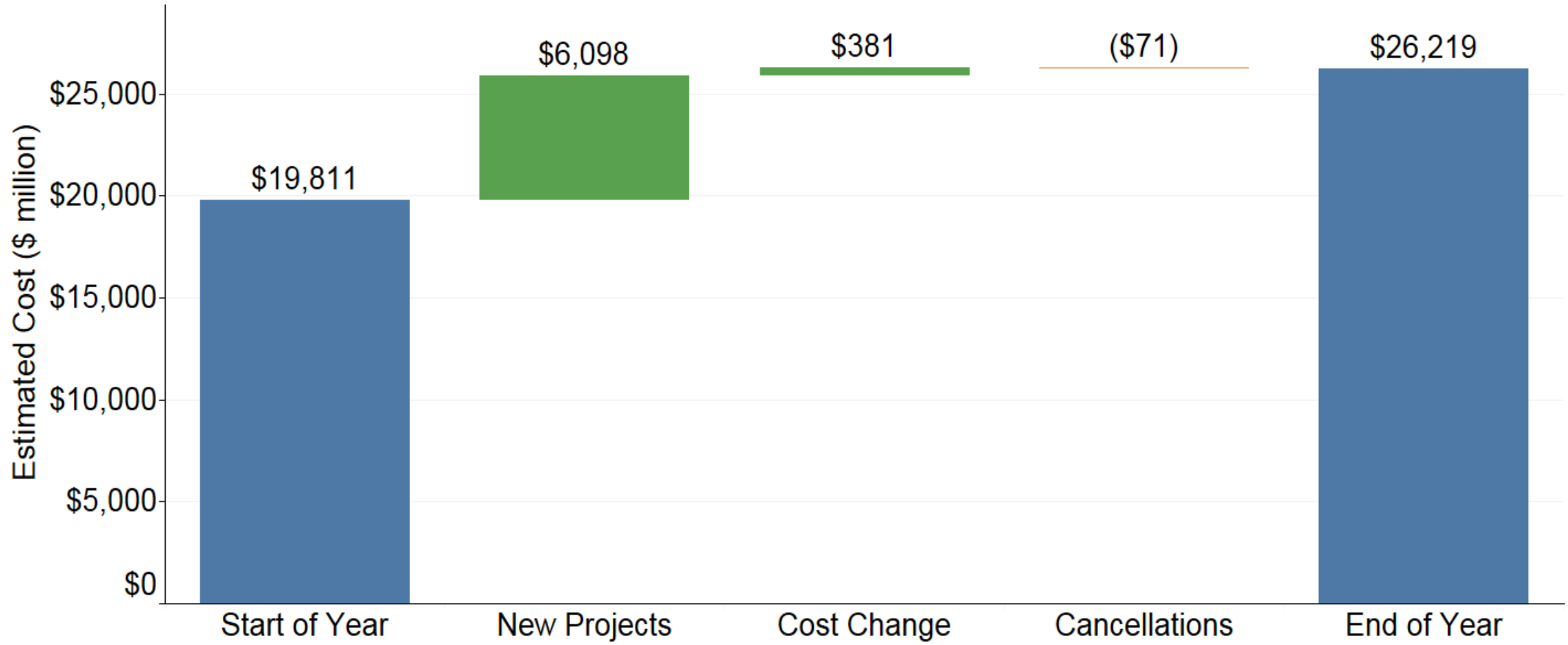


# 2018 Changes to the RTEP Generation and Merchant Network Upgrade Projects

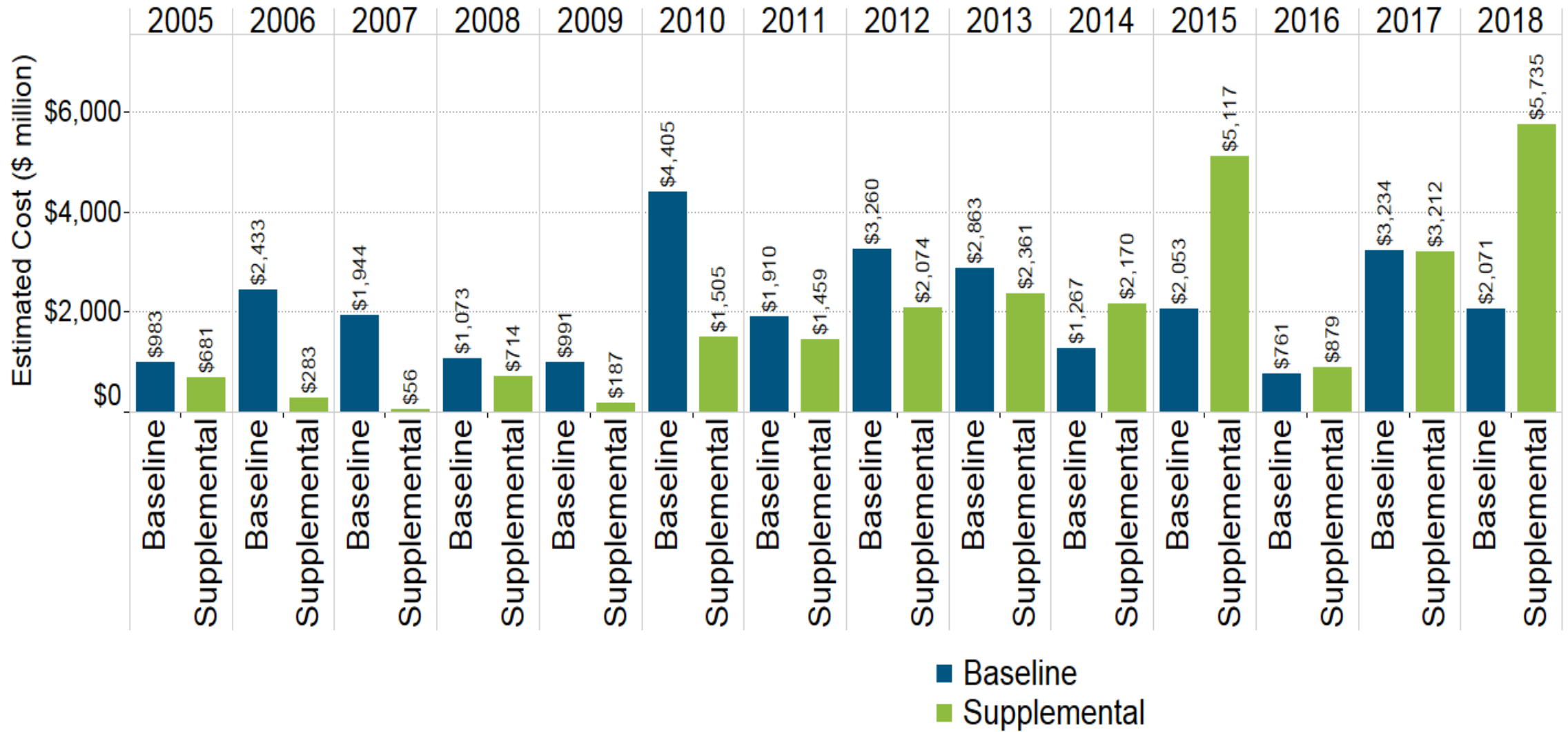


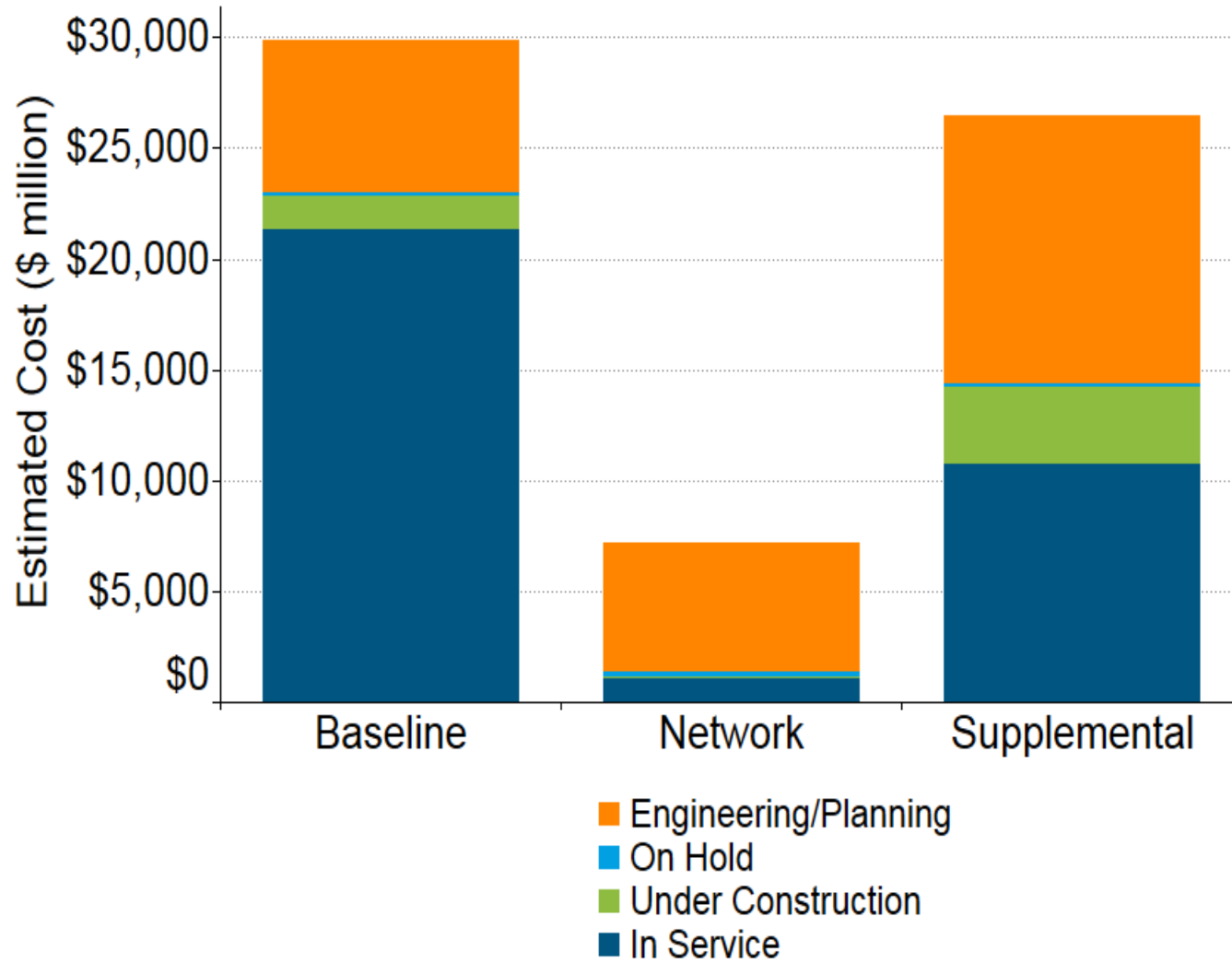


# 2018 Supplemental Projects Presented by TOs to TEAC/Sub-regional TEAC Meetings



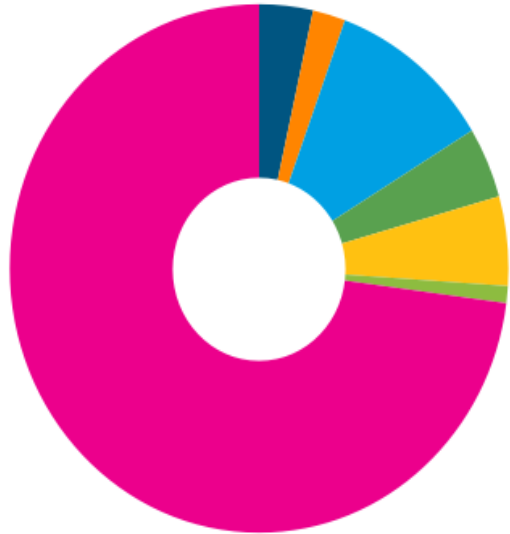
# New Baseline and Supplemental Projects by Year





	Baseline	Network	Supplemental
Engineering/Planning	\$6,926	\$5,800	\$12,037
On Hold	\$162	\$208	\$155
Under Construction	\$1,494	\$36	\$3,541
In Service	\$21,307	\$1,133	\$10,707
<b>Grand Total</b>	<b>\$29,889</b>	<b>\$7,177</b>	<b>\$26,440</b>

## Estimated Cost of Baseline Projects Approved by PJM Board



Baseline Load Growth Deliverability & Reliability	\$72
Congestion Relief - Economic	\$44
Generator Deactivation	\$221
Not Specified	\$90
Operational Performance	\$113
Short Circuit	\$22
TO Criteria Violation	\$1,509

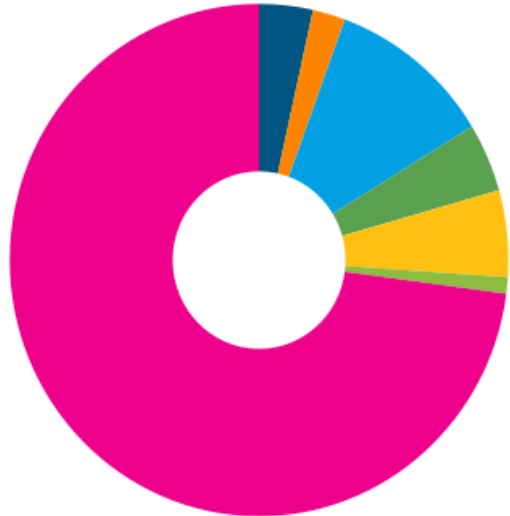
## Estimated Cost of Supplemental Projects Presented by TOs to the TEAC



Equipment Material Condition, Performance and Risk	\$2,287
Operational Flexibility and Efficiency	\$942
Customer Service	\$49
Other	\$1
Multiple Drivers	\$2,377
Null	\$79



### Estimated Cost of Baseline Projects Approved by PJM Board



Baseline Load Growth Deliverability & Reliability	\$72
Congestion Relief - Economic	\$44
Generator Deactivation	\$221
Not Specified	\$90
Operational Performance	\$113
Short Circuit	\$22
TO Criteria Violation	\$1,509

### Estimated Cost of Baselines Projects Driven by TO Criteria Violations



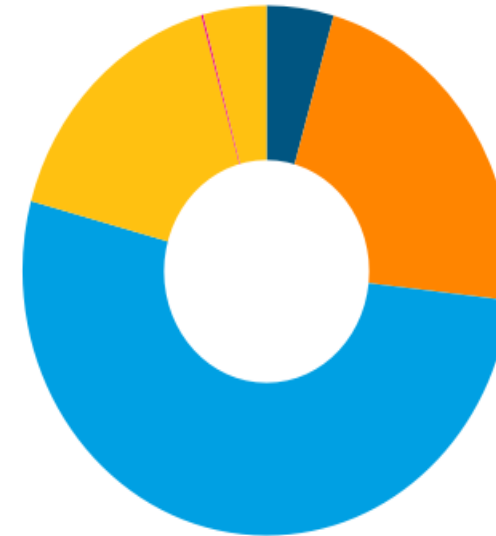
Aging Infrastructure	\$807
Other TO Criteria	\$702

## Estimated Cost of Supplemental Projects Presented by TOs to the TEAC

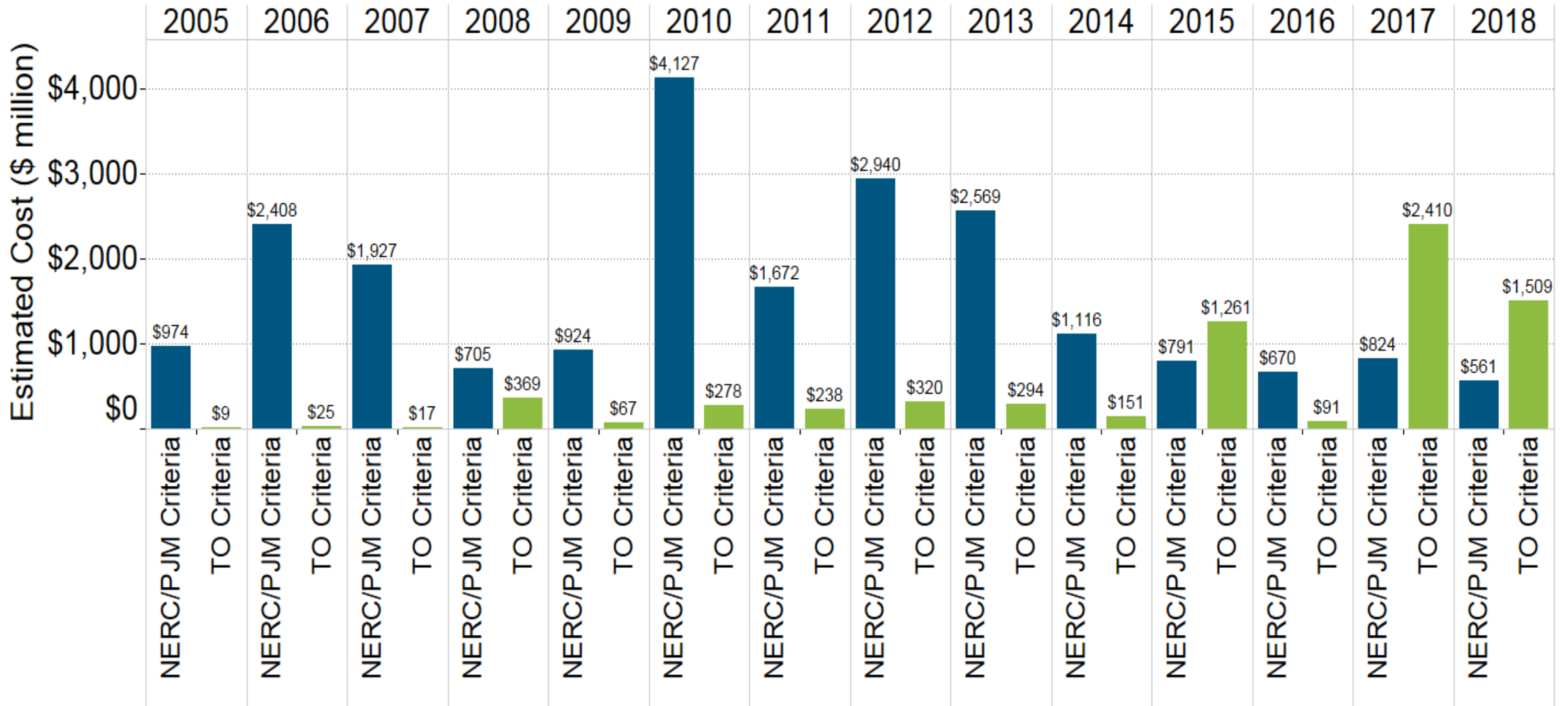


Equipment Material Condition, Performance and Risk	\$2,287
Operational Flexibility and Efficiency	\$942
Customer Service	\$49
Other	\$1
Multiple Drivers	\$2,377
Null	\$79

## Estimated Cost of Supplemental Projects with Multiple Drivers

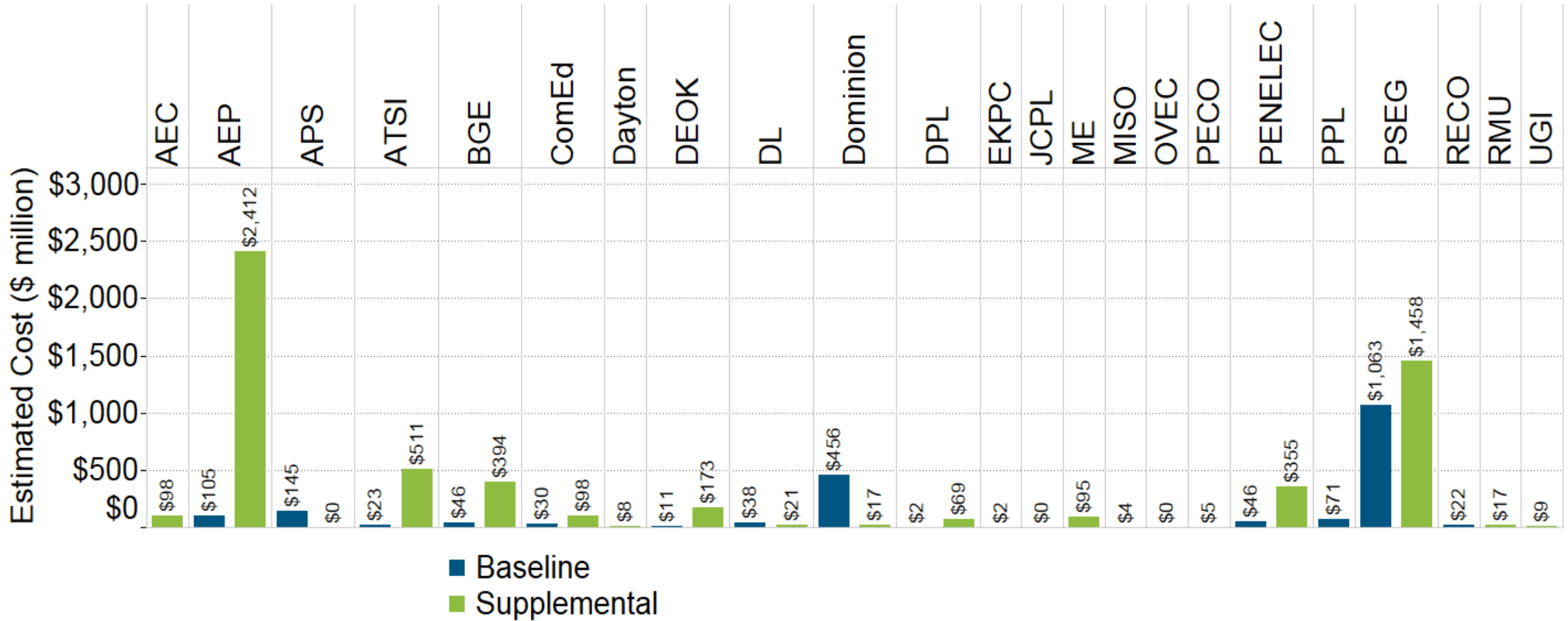


Equipment Material Condition, Performance and Risk / Customer Service	\$105
Equipment Material Condition, Performance and Risk / Infrastructure Resilience	\$532
Equipment Material Condition, Performance and Risk / Infrastructure Resilience / Customer Service	\$0
Equipment Material Condition, Performance and Risk / Operational Flexibility and Efficiency	\$1,246
Equipment Material Condition, Performance and Risk / Operational Flexibility and Efficiency / Customer Service	\$391
Equipment Material Condition, Performance and Risk / Operational Flexibility and Efficiency / Infrastructure Resilience	\$3
Operational Flexibility and Efficiency / Customer Service	\$99





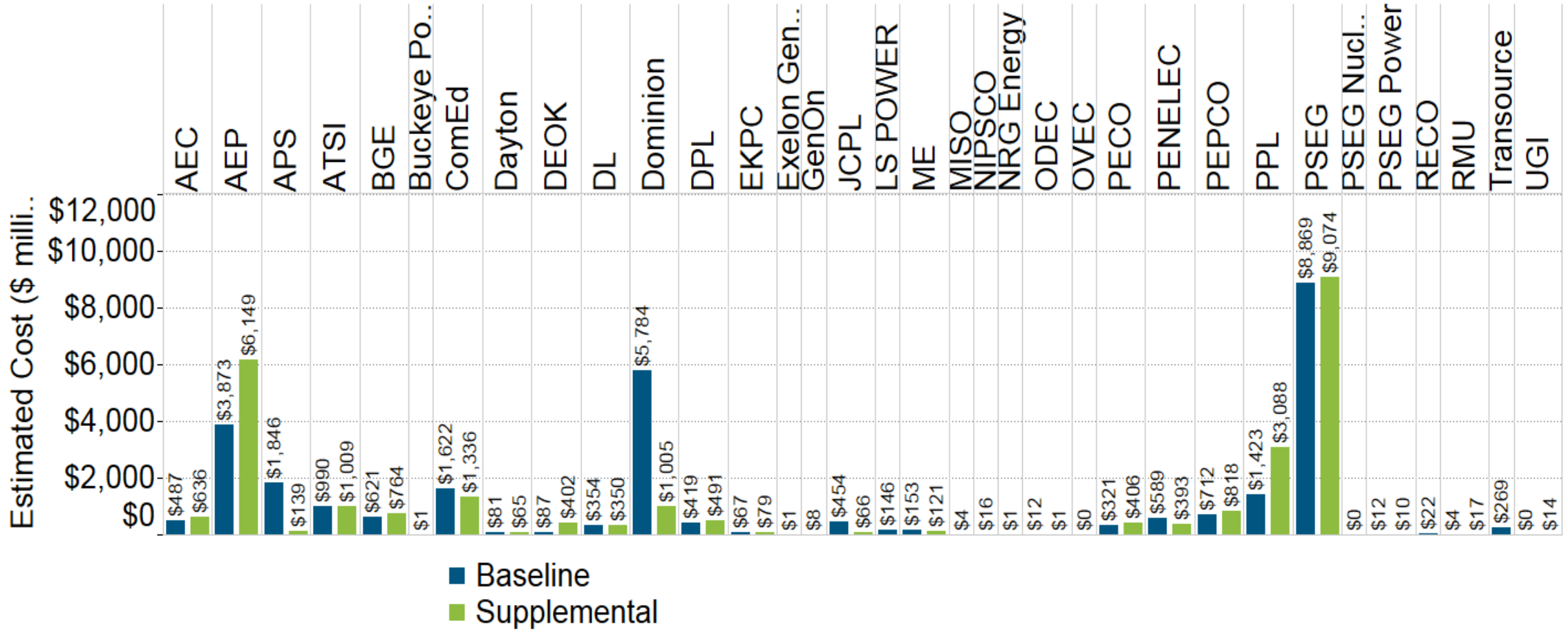
# Distribution of New Baseline and Supplemental Projects Approved by the PJM Board (baseline) or Presented (supplemental) in 2018



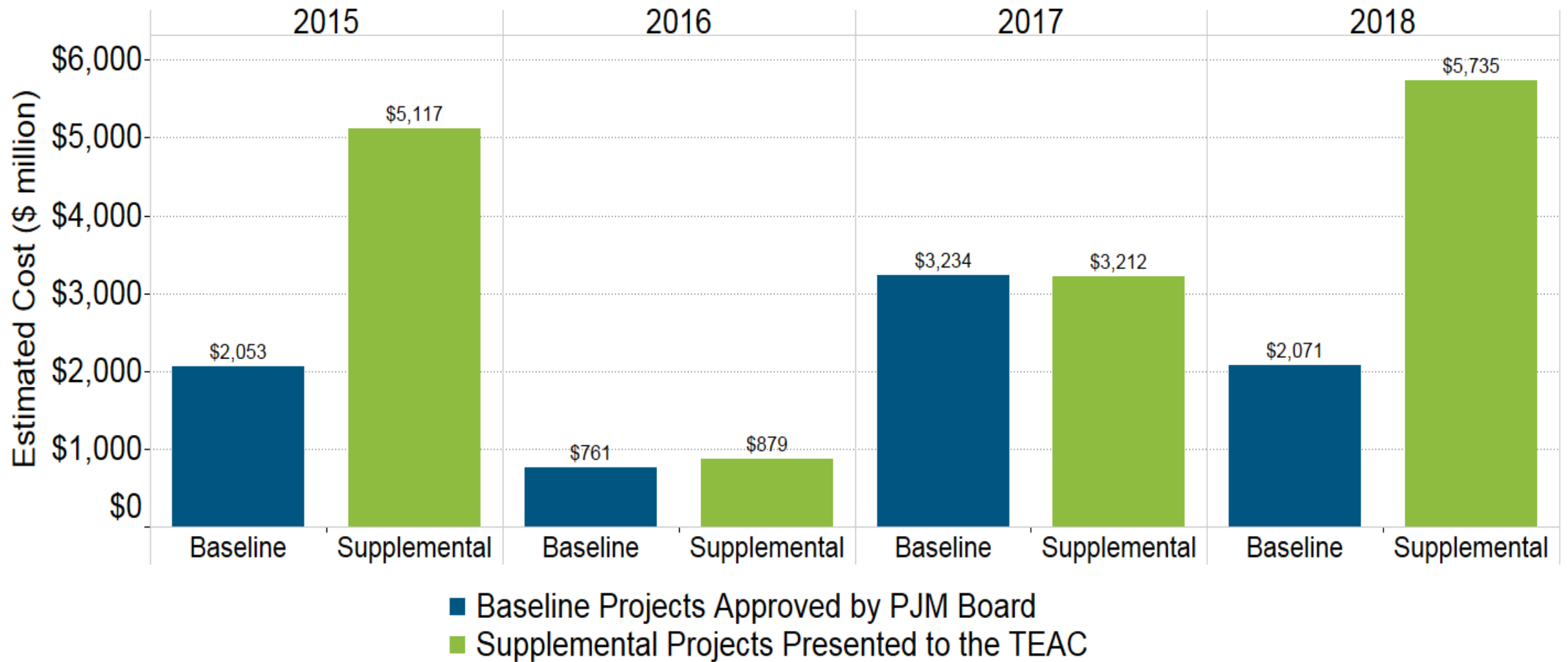


# Distribution of New Baseline and Supplemental Projects

Approved by the PJM Board (baseline) or Presented (supplemental) since 2005

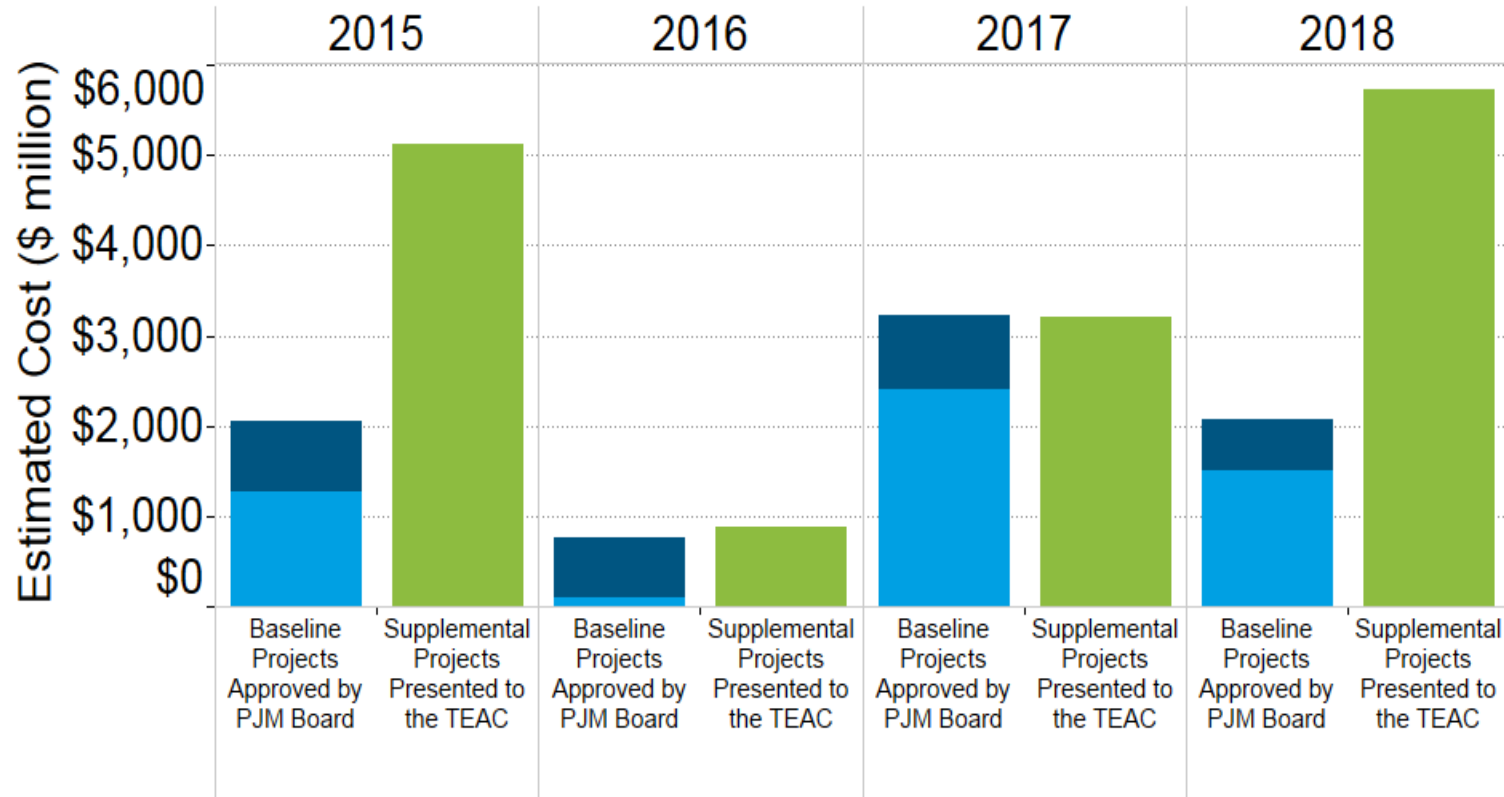


# Baseline and Supplemental Projects by Year



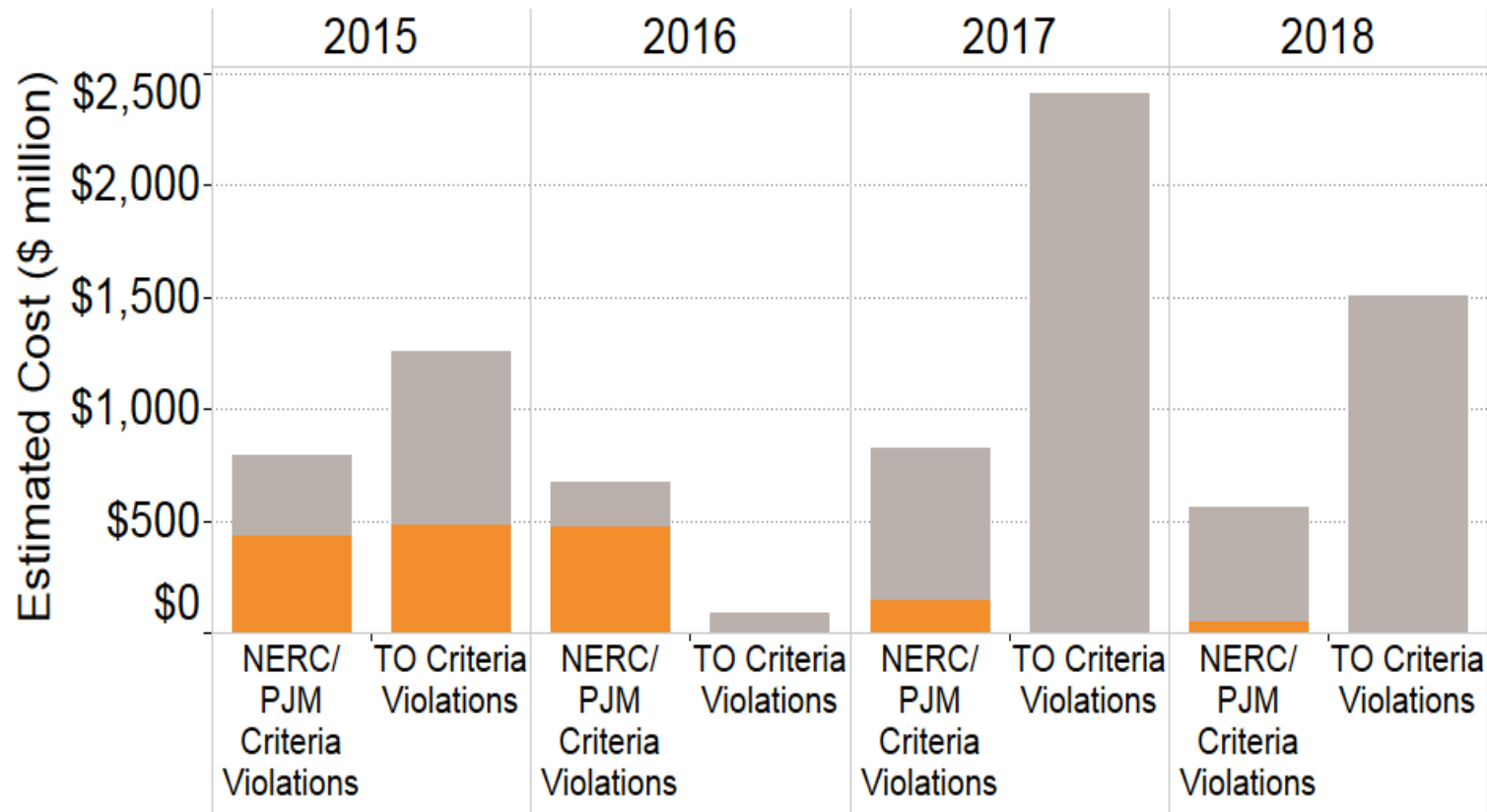


# Baseline and Supplemental Projects by Year



	Baseline		Supplemental
	NERC/PJM Criteria Violations	TO Criteria Violations	Supplemental Projects
2015	\$791	\$1,261	\$5,117
2016	\$670	\$91	\$879
2017	\$824	\$2,410	\$3,212
2018	\$561	\$1,509	\$5,735

- NERC/PJM Criteria Violations
- TO Criteria Violations
- Supplemental Projects



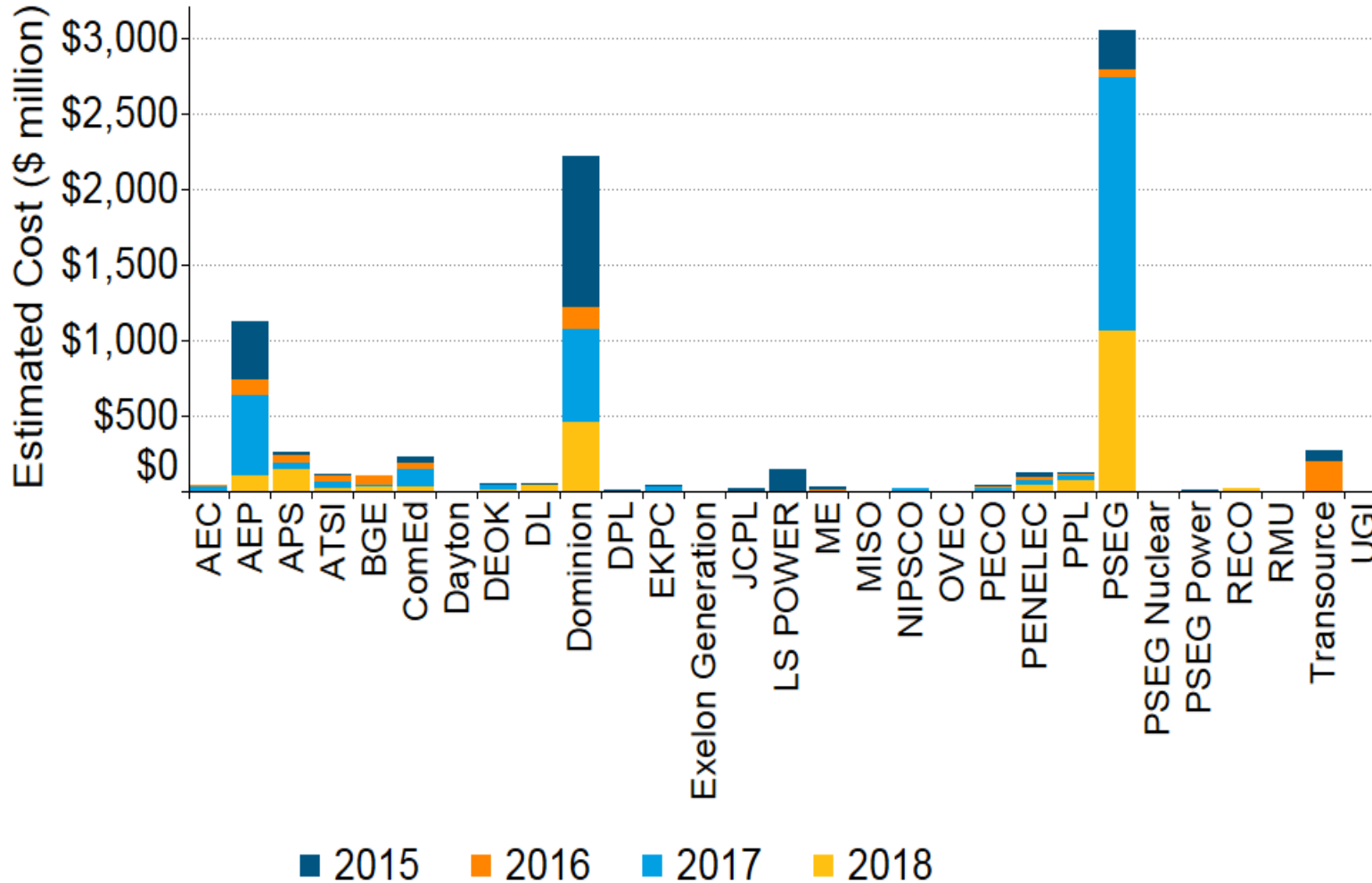
	Eligible for Competitive Window	Not Eligible for Competitive Window
2015	\$912	\$1,140
2016	\$471	\$290
2017	\$142	\$3,092
2018	\$50	\$2,020

Not Eligible for Competitive Window  
 Eligible for Competitive Window





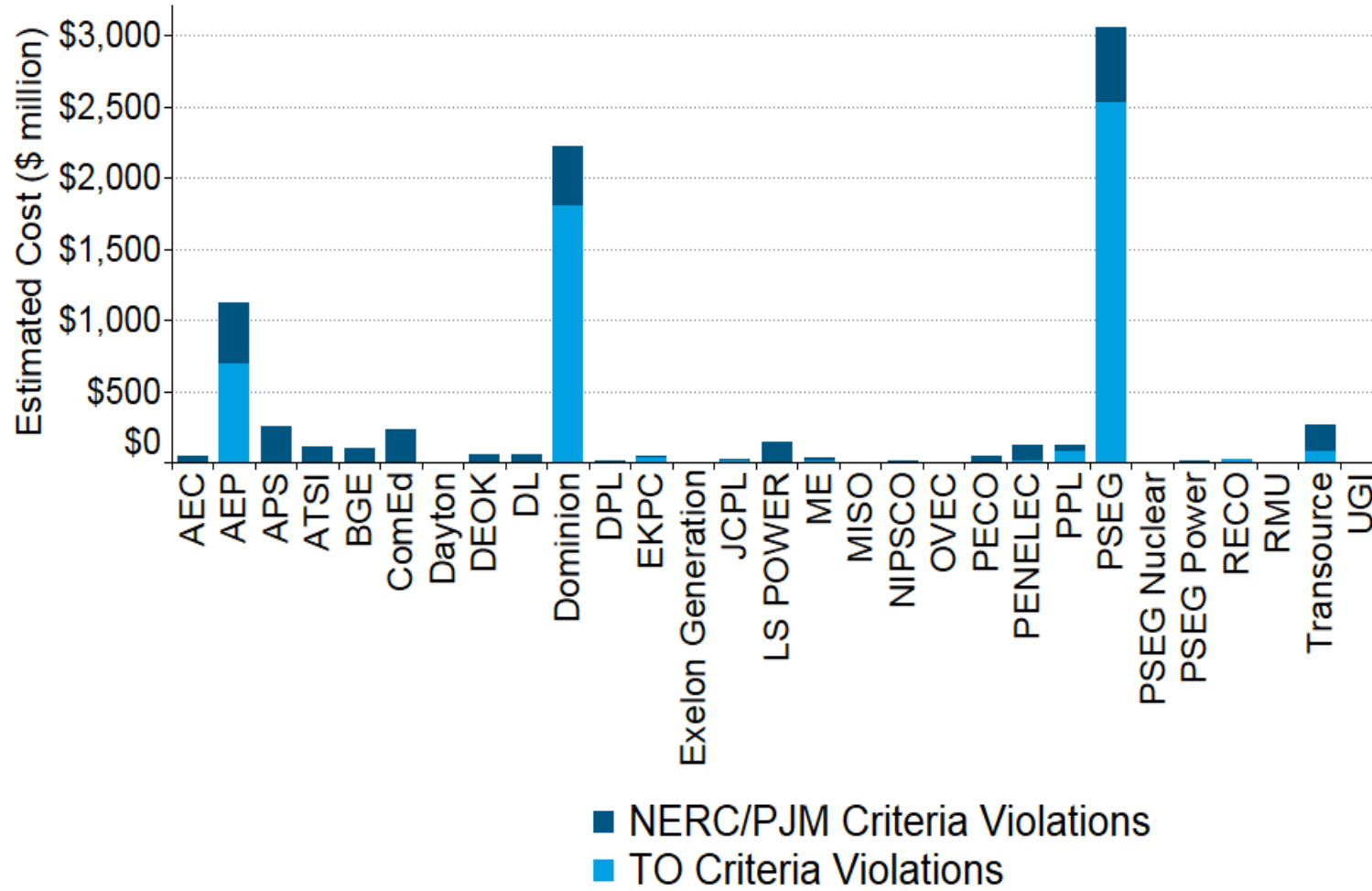
# Baseline Projects by Designated Entity Approved by PJM Board 2015-2018



	2015	2016	2017	2018
AEC		\$1	\$37	
AEP	\$381	\$114	\$526	\$105
APS	\$15	\$60	\$38	\$145
ATSI	\$12	\$45	\$35	\$23
BGE		\$53	\$1	\$46
ComEd	\$40	\$39	\$116	\$30
Dayton			\$1	
DEOK	\$7		\$37	\$11
DL	\$13			\$38
Dominion	\$998	\$148	\$621	\$456
DPL	\$4		\$3	\$2
EKPC	\$5	\$1	\$38	\$2
Exelon Generation			\$1	
JCPL	\$23	\$1	\$0	\$0
LS POWER	\$146			
ME	\$21	\$3	\$6	
MISO				\$4
NIPSCO			\$16	
OVEC				\$0
PECO	\$12	\$12	\$14	\$5
PENELEC	\$30	\$15	\$31	\$46
PPL	\$5	\$14	\$33	\$71
PSEG	\$260	\$56	\$1,679	\$1,063
PSEG Nuclear	\$0			
PSEG Power	\$9			
RECO				\$22
RMU		\$4		
Transource	\$72	\$197		
UGI		\$0		

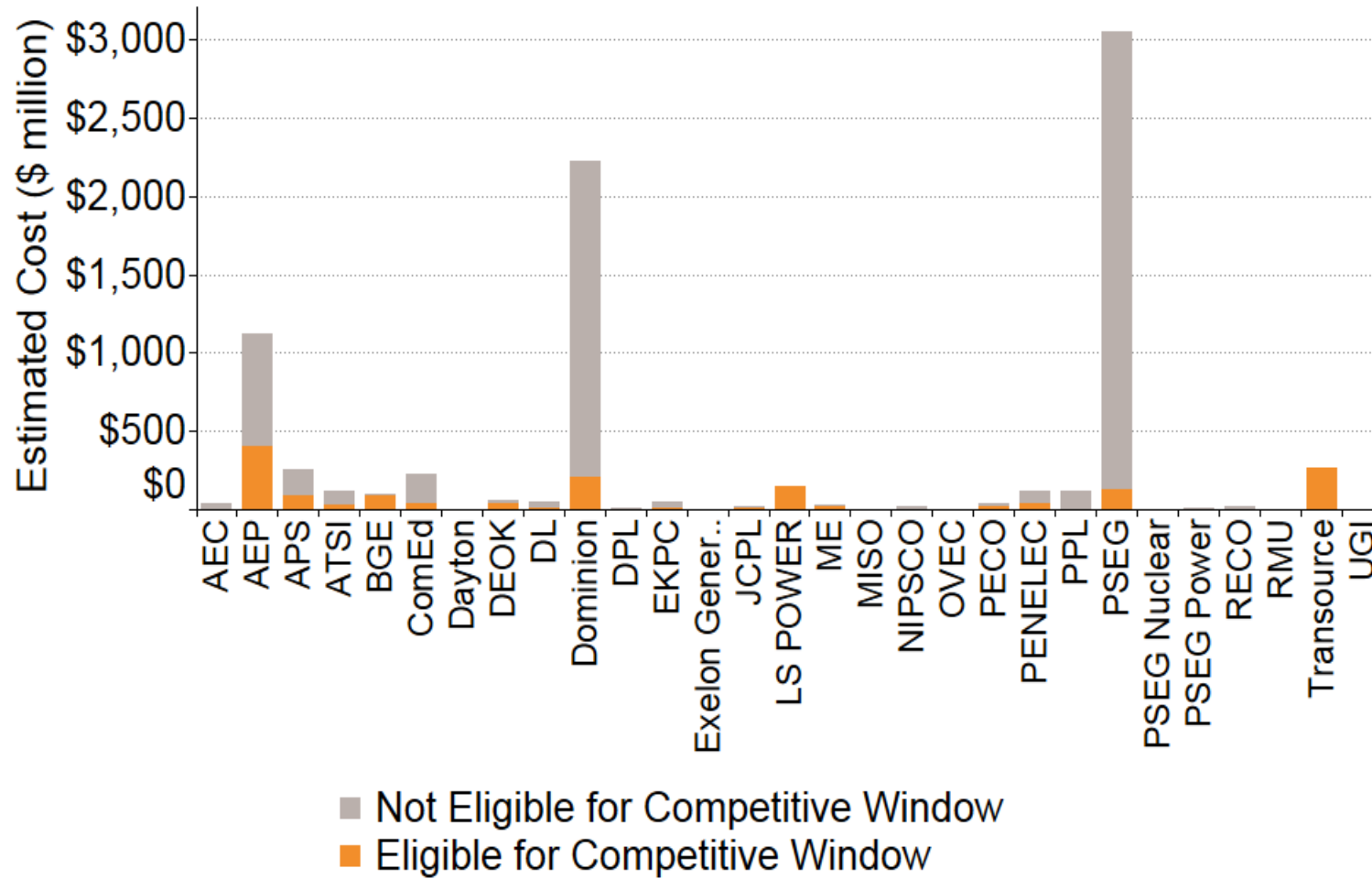


# Baseline Projects by Designated Entity Approved by PJM Board 2015 - 2018



	NERC/PJM Criteria Violatio..	TO Criteria Violations
AEC	\$39	
AEP	\$428	\$698
APS	\$257	\$1
ATSI	\$115	
BGE	\$99	
ComEd	\$226	
Dayton	\$1	
DEOK	\$56	
DL	\$51	
Dominion	\$423	\$1,800
DPL	\$9	
EKPC	\$5	\$40
Exelon Genera..	\$1	
JCPL	\$3	\$21
LS POWER	\$146	
ME	\$24	\$6
MISO	\$4	
NIPSCO	\$16	
OVEC	\$0	
PECO	\$43	
PENELEC	\$113	\$9
PPL	\$44	\$79
PSEG	\$534	\$2,525
PSEG Nuclear	\$0	
PSEG Power	\$9	
RECO		\$22
RMU	\$4	
Transource	\$197	\$72
UGI	\$0	

# Baseline Projects by Designated Entity Approved by PJM Board 2015-2018

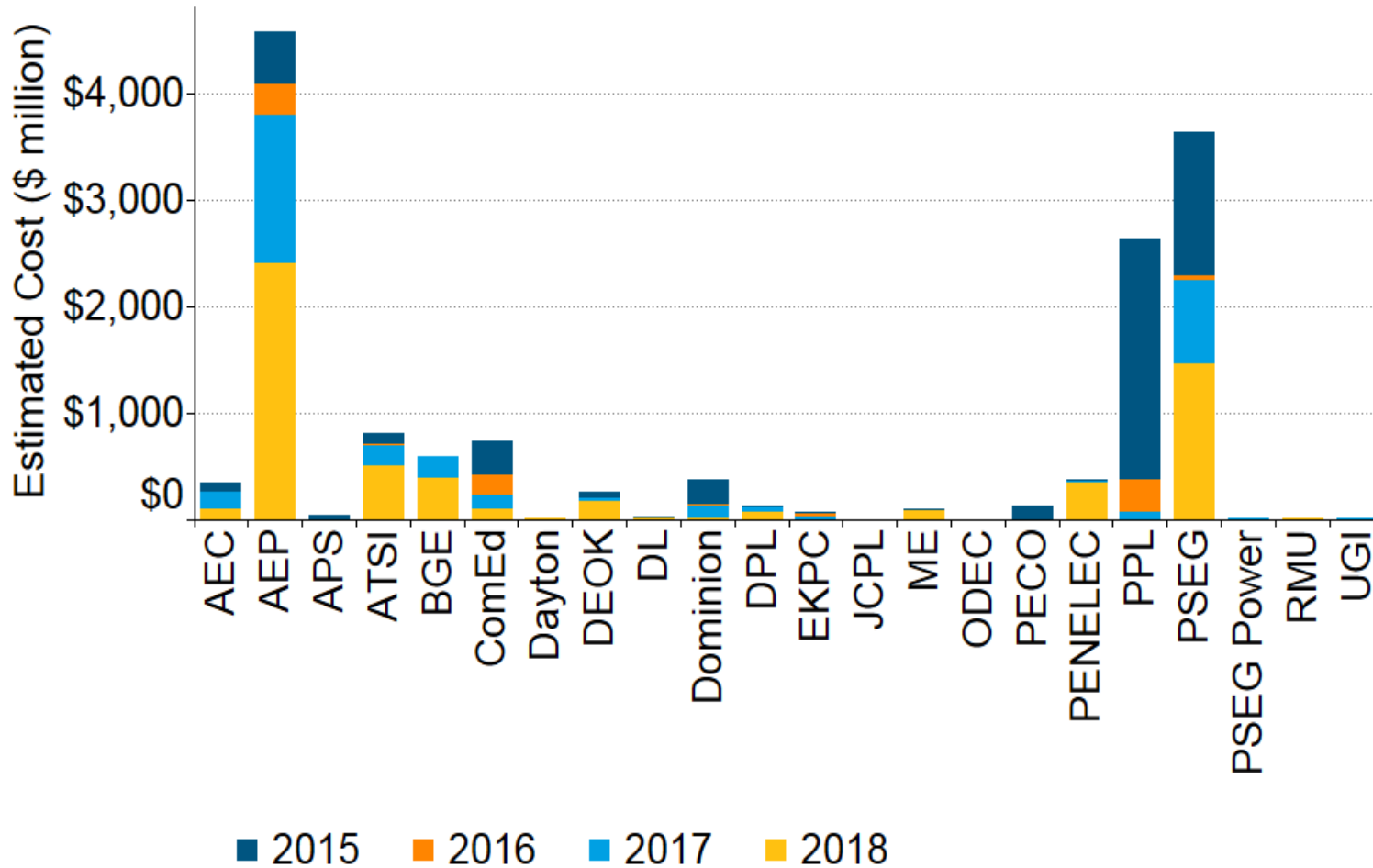


	Eligible for Competitive Window	Not Eligible for Competitive Window
AEC		\$39
AEP	\$402	\$724
APS	\$87	\$171
ATSI	\$33	\$82
BGE	\$93	\$6
ComEd	\$43	\$183
Dayton		\$1
DEOK	\$40	\$16
DL	\$11	\$40
Dominion	\$203	\$2,020
DPL	\$4	\$5
EKPC	\$6	\$39
Exelon Generation		\$1
JCPL	\$23	\$1
LS POWER	\$146	
ME	\$15	\$15
MISO		\$4
NIPSCO		\$16
OVEC		\$0
PECO	\$23	\$20
PENELEC	\$40	\$81
PPL	\$4	\$119
PSEG	\$132	\$2,927
PSEG Nuclear	\$0	
PSEG Power		\$9
RECO		\$22
RMU		\$4
Transource	\$269	
UGI		\$0



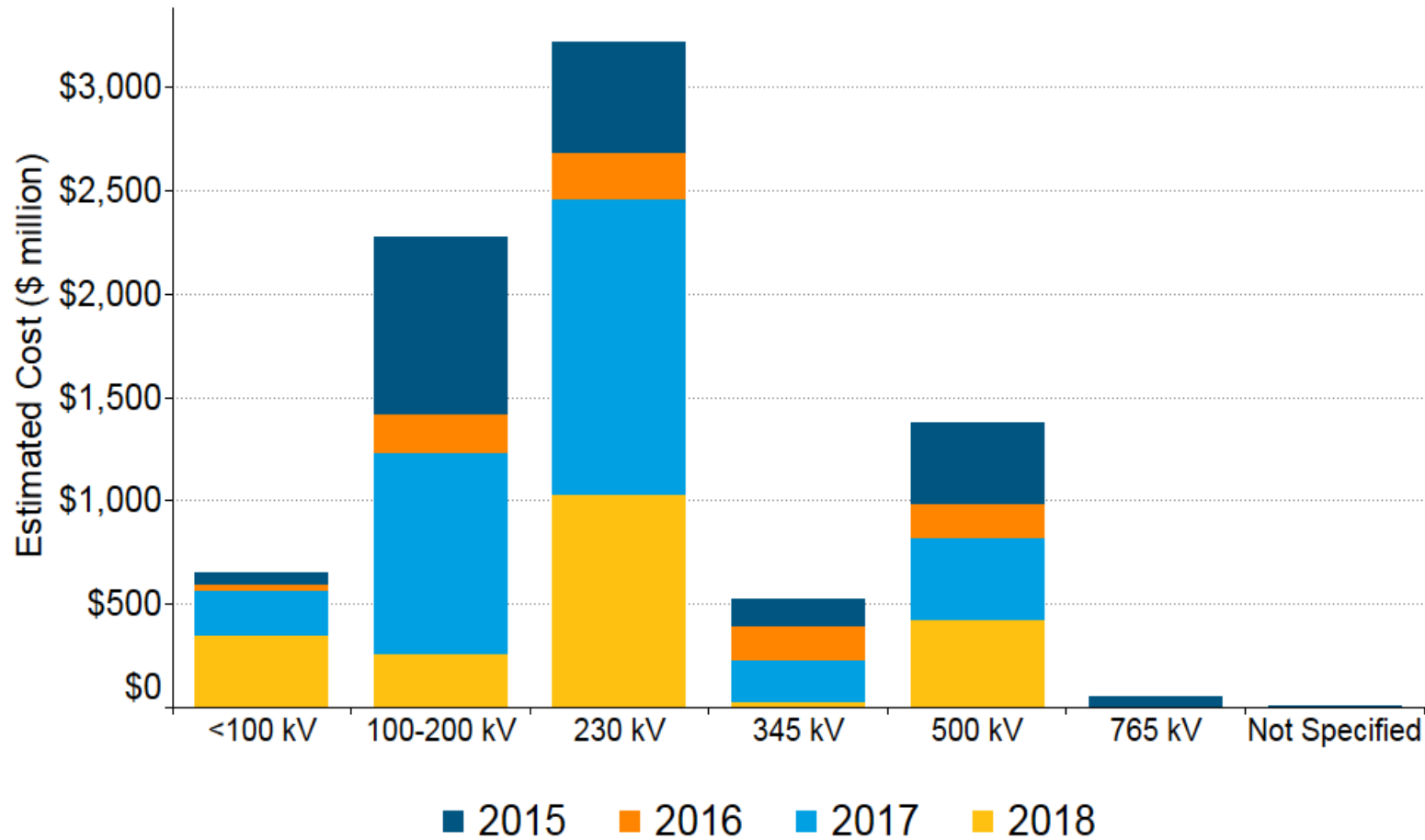
# Supplemental Projects by Transmission Owner

Presented to the TEAC/Sub-regional TEAC Meetings in 2015-2018



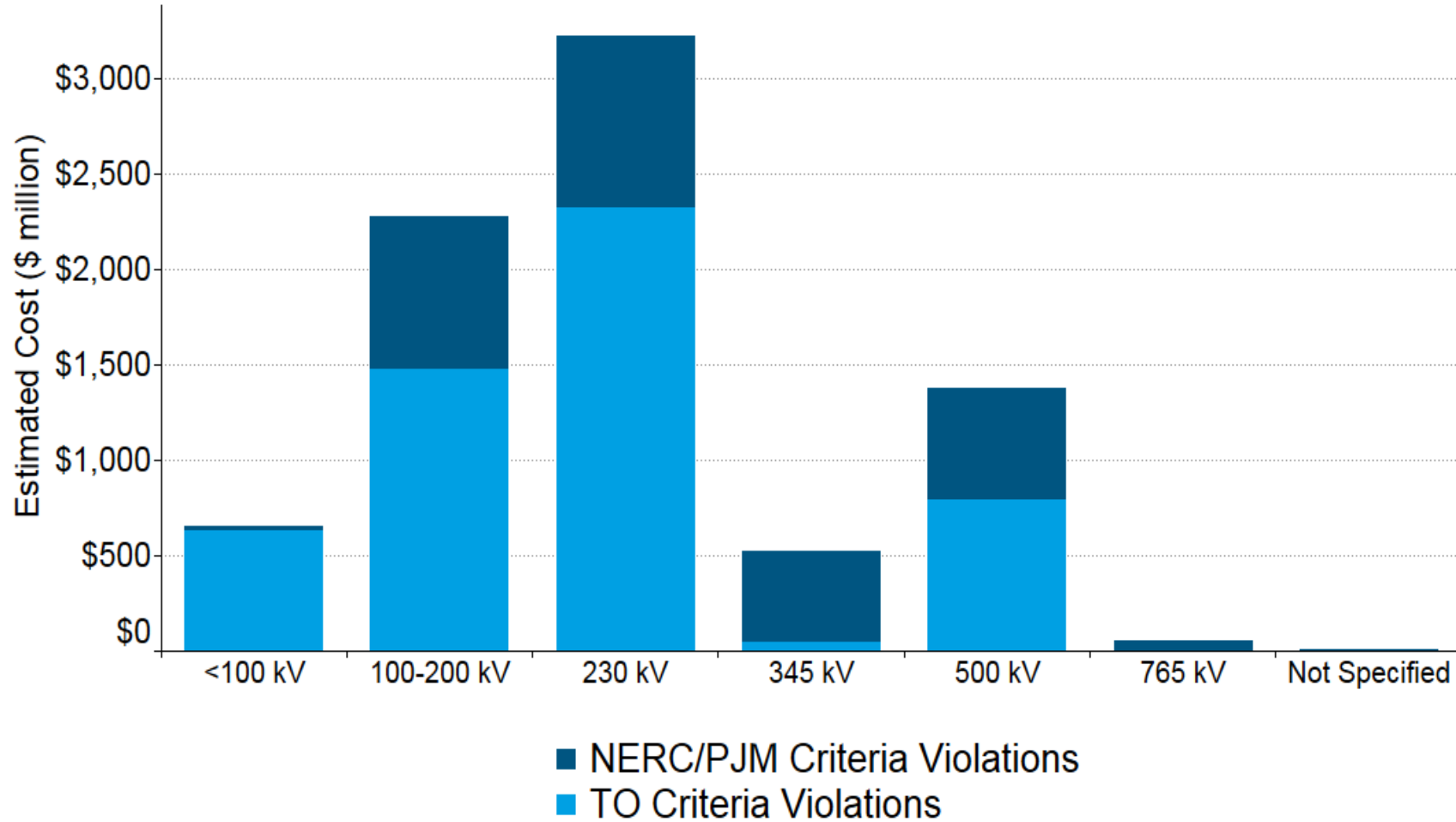
	2015	2016	2017	2018
AEC	\$97		\$157	\$98
AEP	\$493	\$295	\$1,386	\$2,412
APS	\$40	\$1		\$0
ATSI	\$102	\$3	\$193	\$511
BGE			\$207	\$394
ComEd	\$317	\$186	\$137	\$98
Dayton				\$8
DEOK	\$53		\$33	\$173
DL	\$11		\$4	\$21
Dominion	\$235	\$6	\$124	\$17
DPL	\$17		\$46	\$69
EKPC	\$10	\$33	\$35	
JCPL	\$0			
ME	\$4			\$95
ODEC	\$1			
PECO	\$135		\$1	
PENELEC	\$1	\$0	\$21	\$355
PPL	\$2,262	\$306	\$70	
PSEG	\$1,340	\$49	\$788	\$1,458
PSEG Power			\$10	
RMU				\$17
UGI			\$0	\$9

# Baseline Projects by Voltage Approved by PJM Board 2015-2018



	2015	2016	2017	2018
<100 kV	\$65	\$25	\$219	\$345
100-200 kV	\$860	\$186	\$979	\$252
230 kV	\$543	\$223	\$1,431	\$1,026
345 kV	\$135	\$161	\$208	\$20
500 kV	\$399	\$165	\$398	\$418
765 kV	\$52			
Not Specified	\$0			\$10

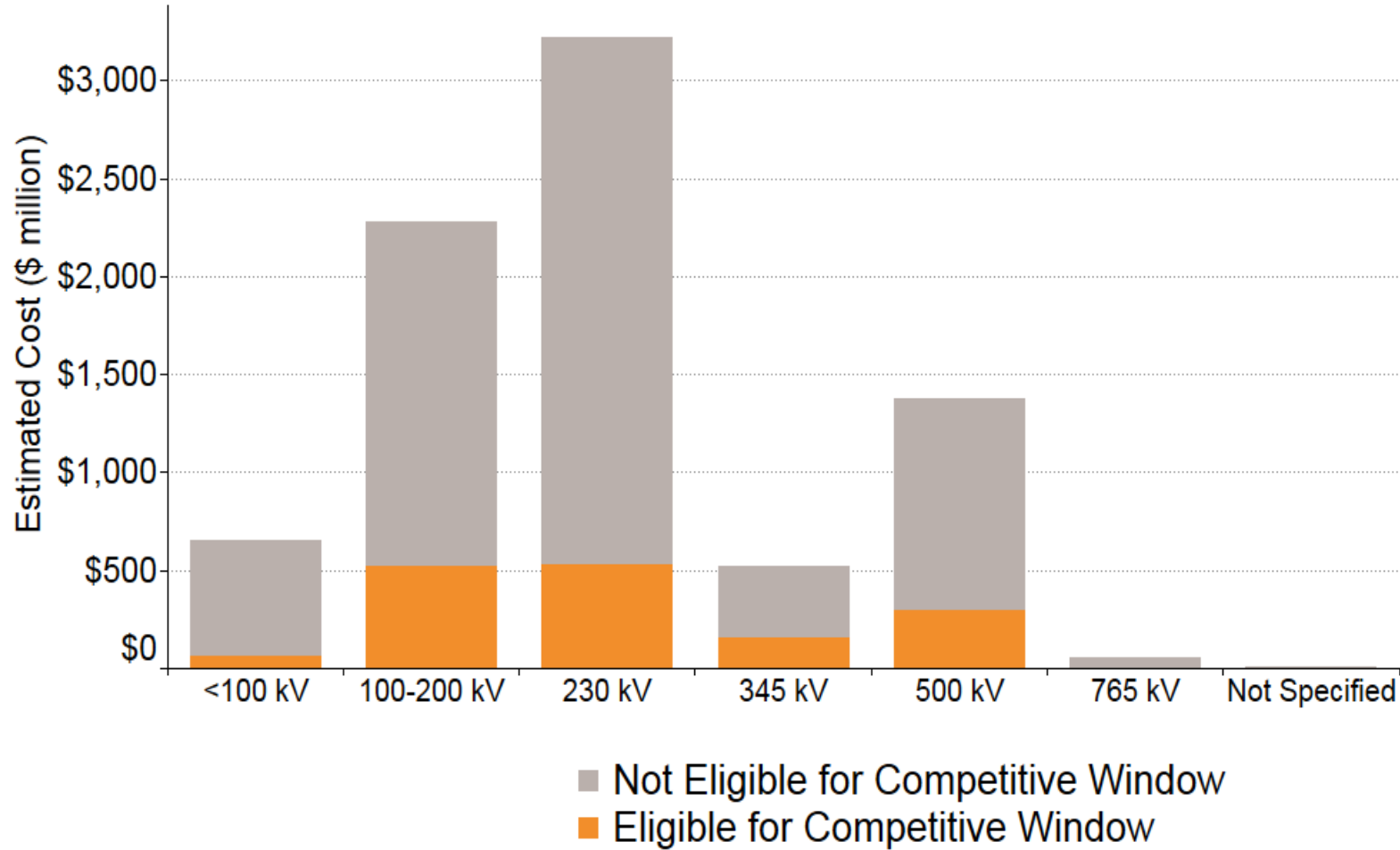
# Baseline Projects by Voltage Approved by PJM Board 2015-2018



	NERC/ PJM Criteria Violations	TO Criteria Violations
<100 kV	\$25	\$630
100-200 kV	\$799	\$1,477
230 kV	\$898	\$2,325
345 kV	\$481	\$43
500 kV	\$583	\$796
765 kV	\$52	
Not Specified	\$9	\$1

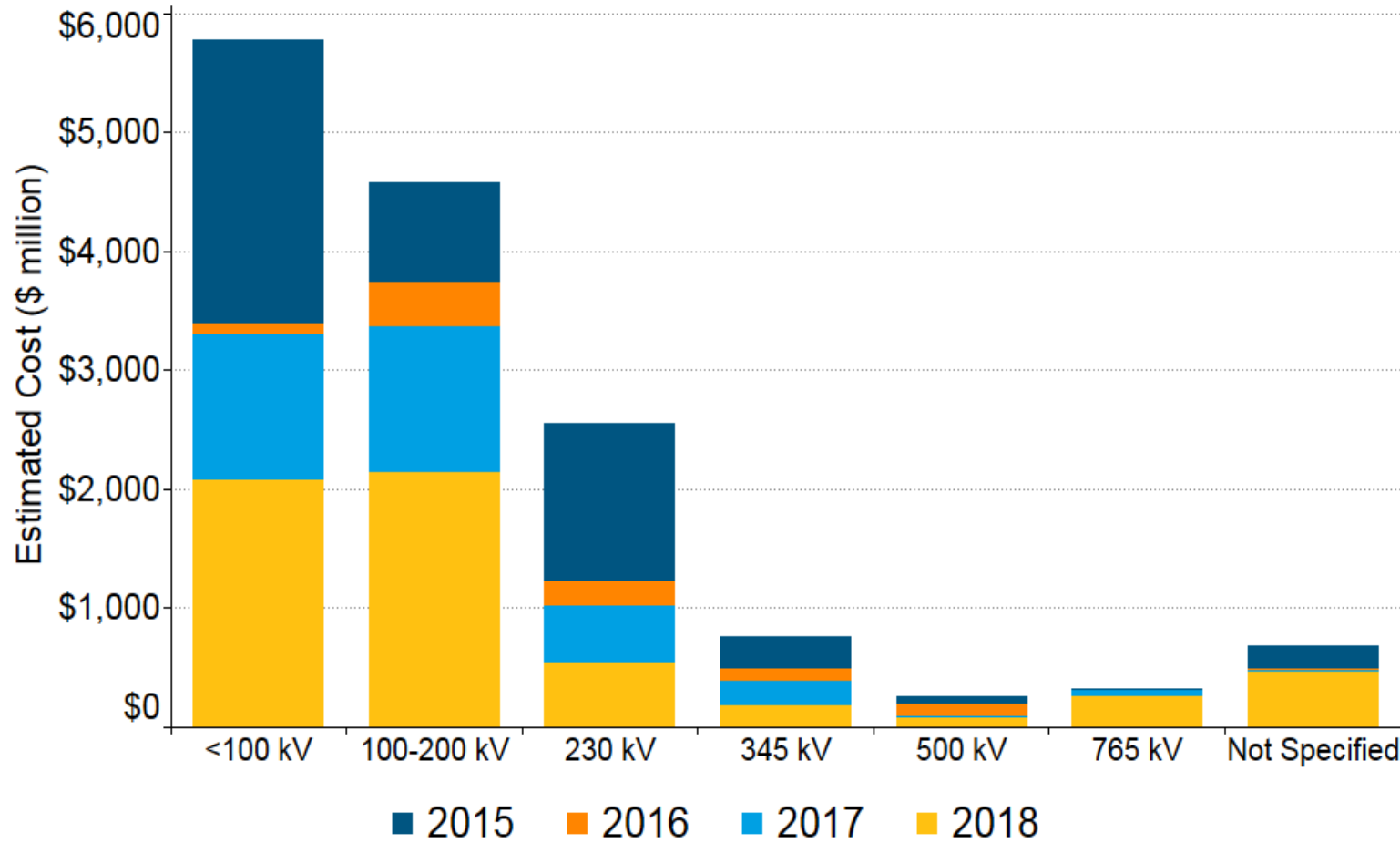


# Baseline Projects by Voltage Approved by PJM Board 2015-2018



	Eligible for Competitive Window	Not Eligible for Competitive Window
<100 kV	\$63	\$591
100-200 kV	\$518	\$1,758
230 kV	\$532	\$2,690
345 kV	\$155	\$369
500 kV	\$297	\$1,082
765 kV	\$1	\$51
Not Specified	\$9	\$1

Presented to the TEAC/Sub-regional TEAC Meetings in 2015-2018



	2015	2016	2017	2018
<100 kV	\$2,386	\$79	\$1,232	\$2,076
100-200 kV	\$839	\$379	\$1,225	\$2,139
230 kV	\$1,331	\$205	\$485	\$537
345 kV	\$281	\$97	\$204	\$183
500 kV	\$68	\$105	\$3	\$85
765 kV	\$19	\$50	\$255	\$0
Not Specified	\$193	\$13	\$13	\$460





V1 – 01/07/2019 – Original Slides Posted