



2018 Project Statistics

Transmission Expansion Advisory Committee
February 7, 2019

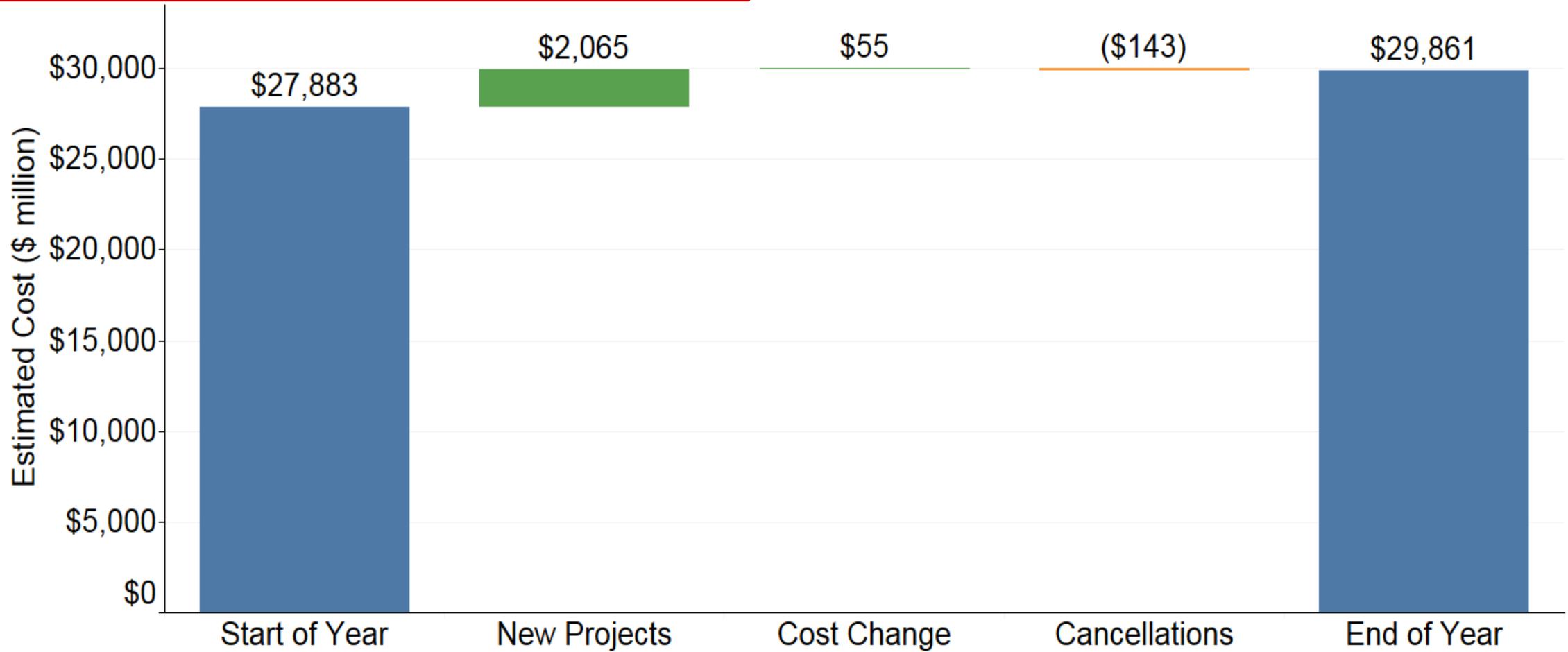
Each slide summarizes the estimated costs for projects presented at the TEAC or Sub-regional TEAC meetings.

- 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 Baseline Projects Presented to PJM Board

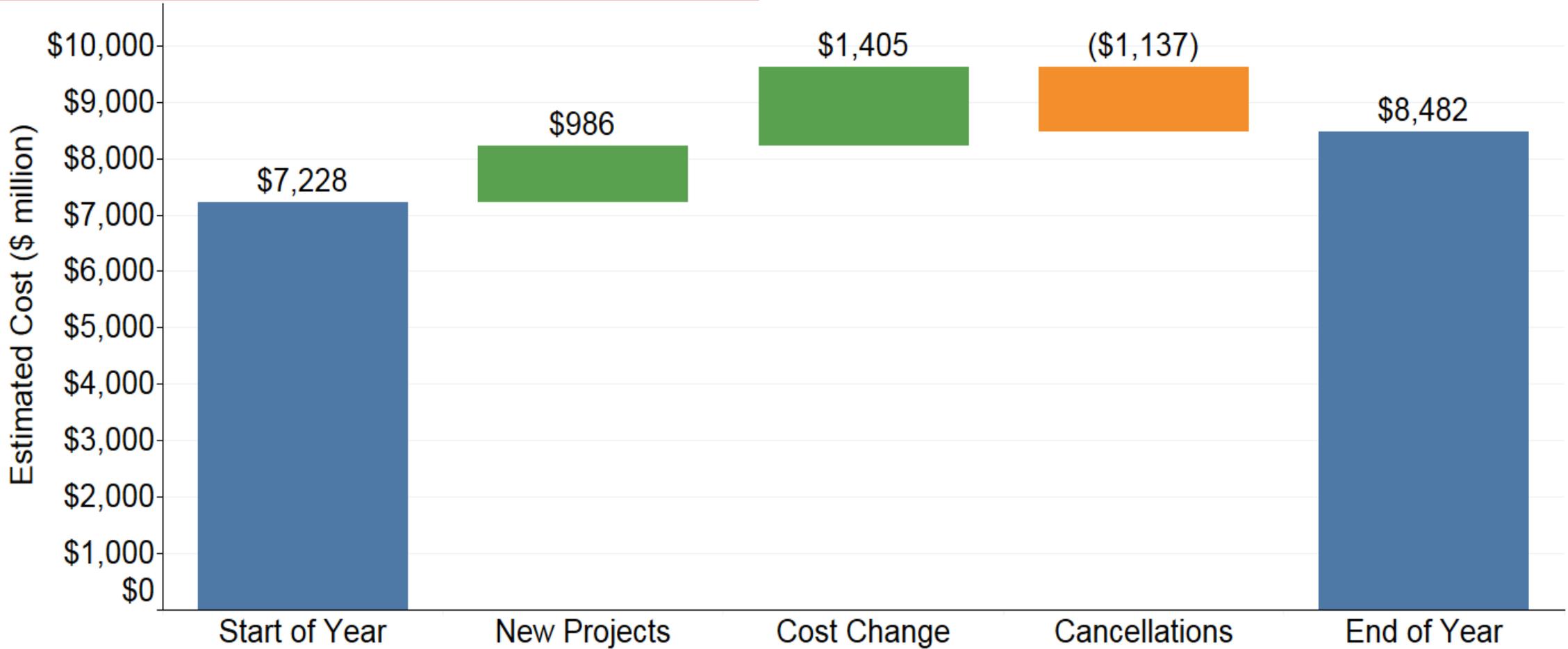
Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.



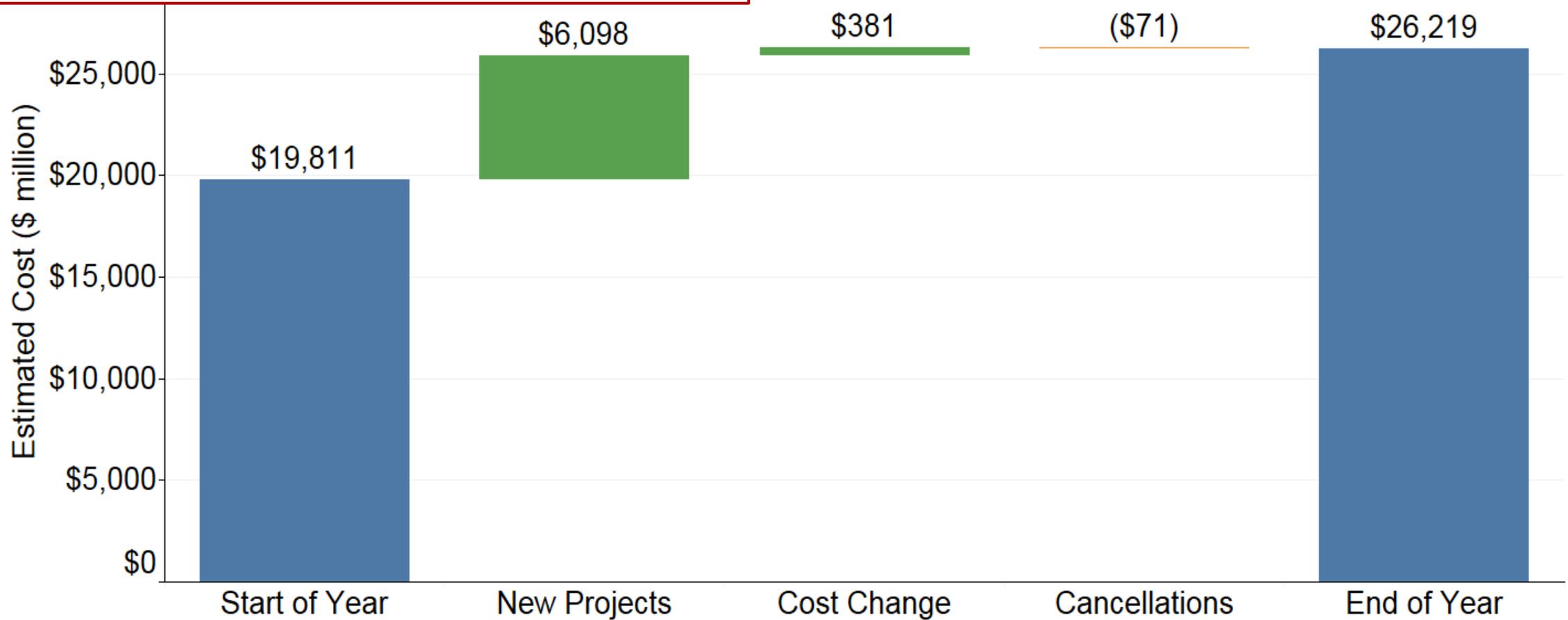


2018 Generation and Merchant Network Upgrade Projects Presented to PJM Board

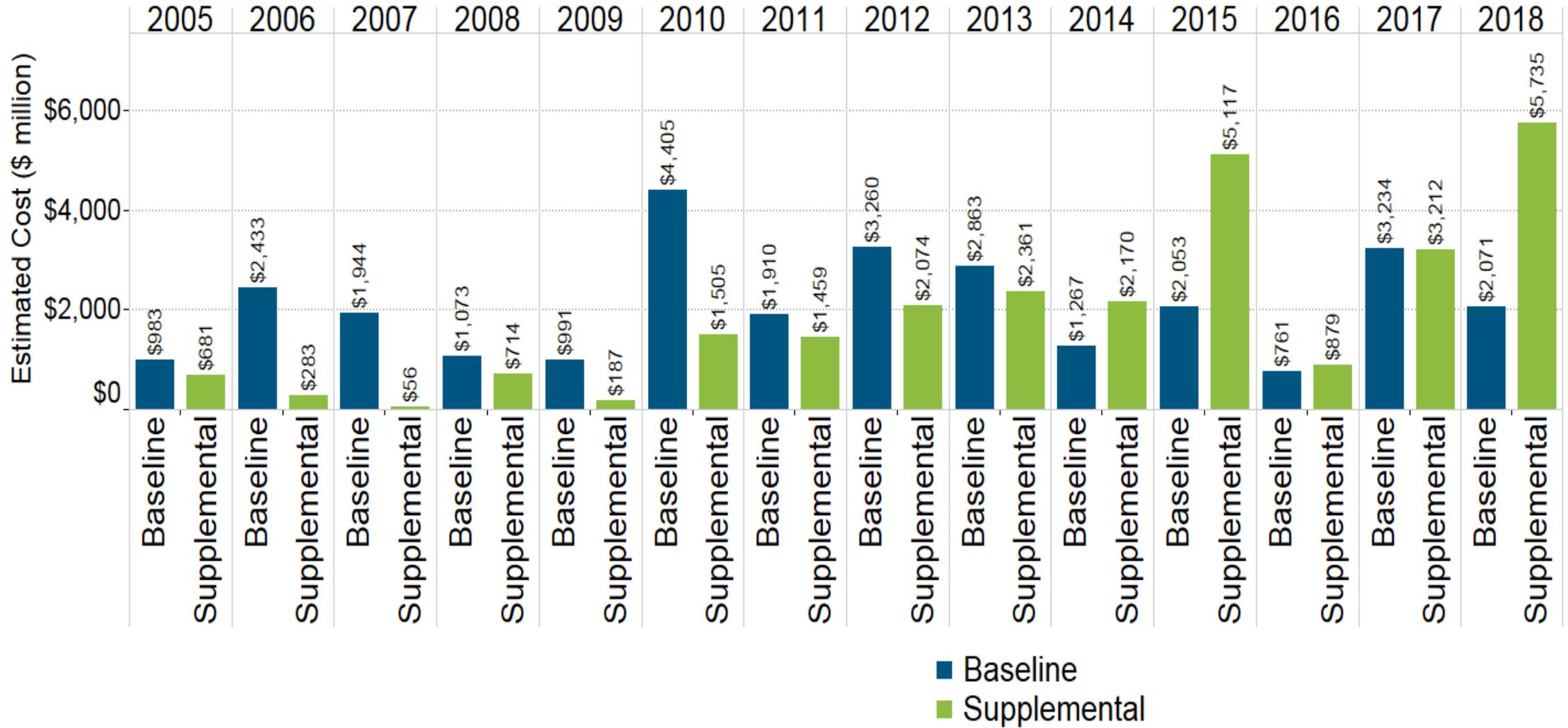
Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.

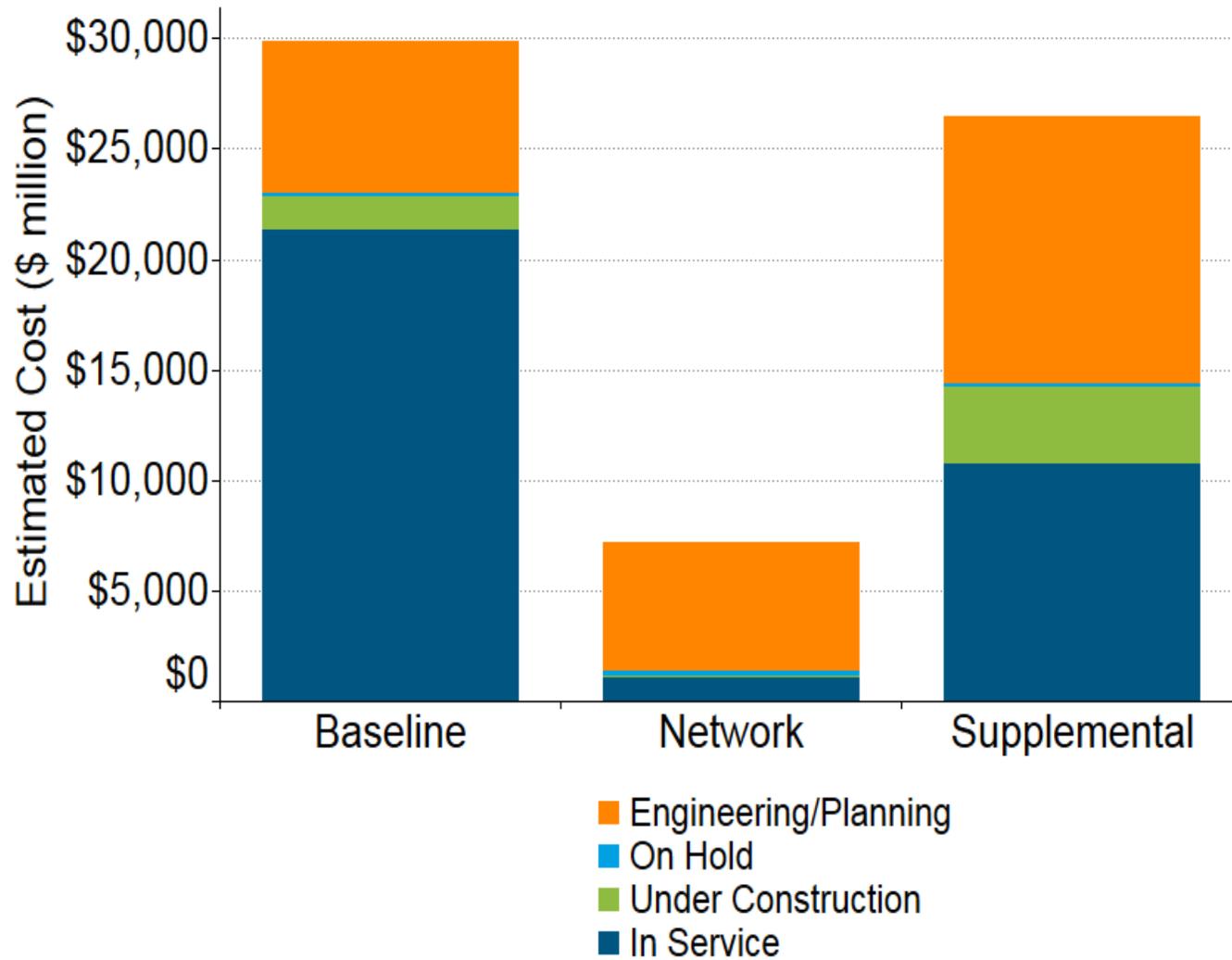


Note: this slide shows costs presented to the PJM Board in 2018. Title is updated to reflect this.



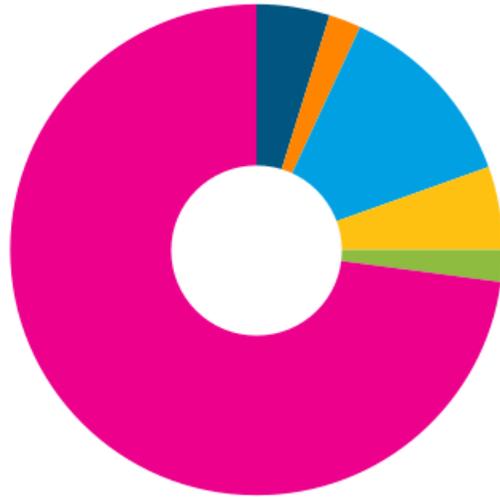
New Baseline and Supplemental Projects by Year





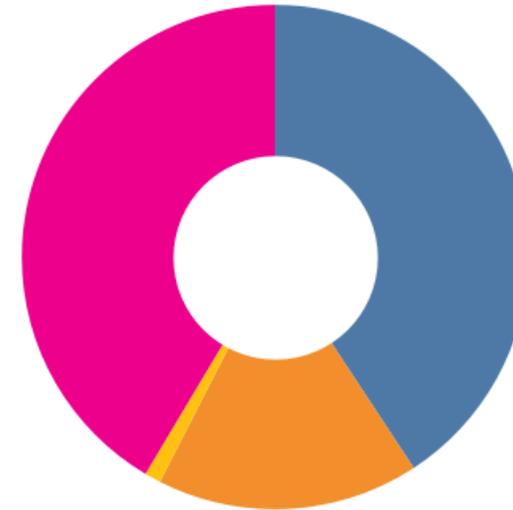
	Baseline	Network	Supplemental
Engineering/Planning	\$6,926	\$5,800	\$12,037
On Hold	\$162	\$208	\$155
Under Construction	\$1,494	\$36	\$3,541
In Service	\$21,307	\$1,133	\$10,707
Grand Total	\$29,889	\$7,177	\$26,440

Estimated Cost of Baseline Projects Approved by PJM Board



Baseline Load Growth Deliverability & Reliability	\$99
Congestion Relief - Economic	\$44
Generator Deactivation	\$261
Operational Performance	\$113
Short Circuit	\$44
TO Criteria Violation	\$1,509

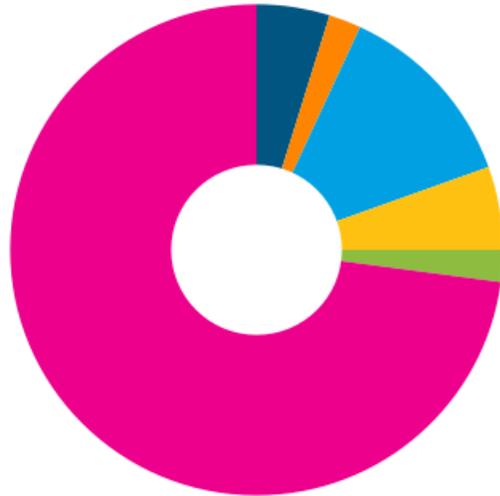
Estimated Cost of Supplemental Projects Presented by TOs to the TEAC



Equipment Material Condition, Performance and Risk	\$2,338
Operational Flexibility and Efficiency	\$960
Customer Service	\$60
Multiple Drivers	\$2,377

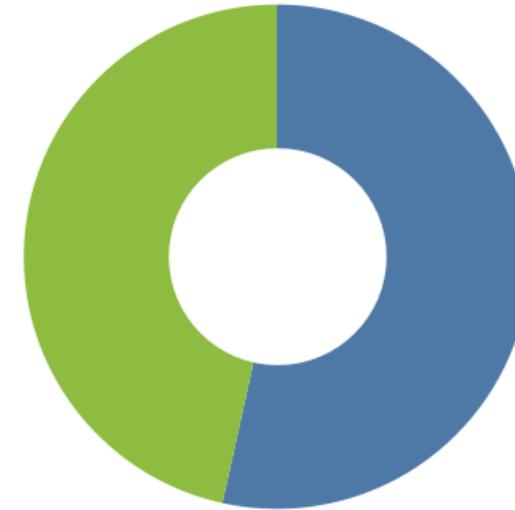
Note: updated drivers originally categorized as “Null” or “Not Specified” or “Other”

Estimated Cost of Baseline Projects Approved by PJM Board



Baseline Load Growth Deliverability & Reliability	\$99
Congestion Relief - Economic	\$44
Generator Deactivation	\$261
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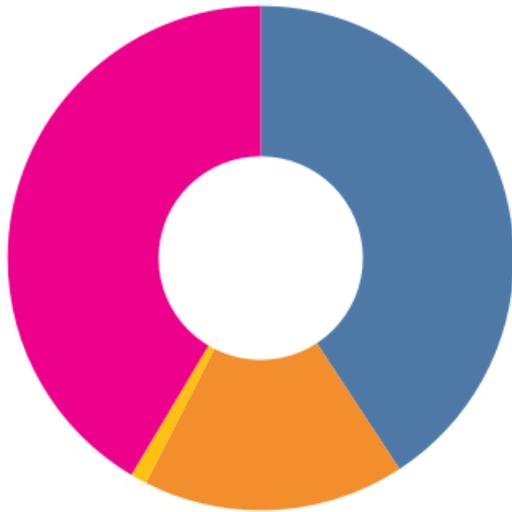
Estimated Cost of Baselines Projects Driven by TO Criteria Violations



Aging Infrastructure	\$807
Other TO Criteria	\$702

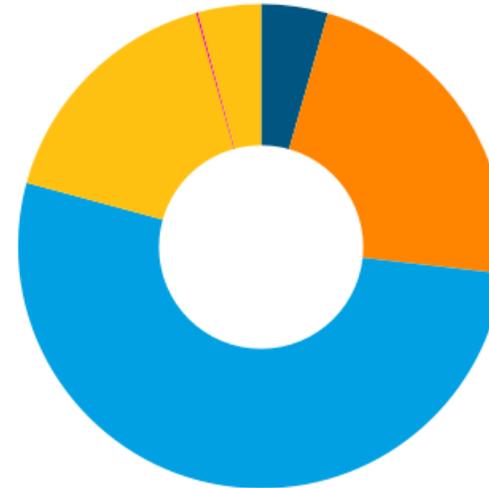
Note: updated drivers originally categorized as "Not Specified"

Estimated Cost of Supplemental Projects Presented by TOs to the TEAC



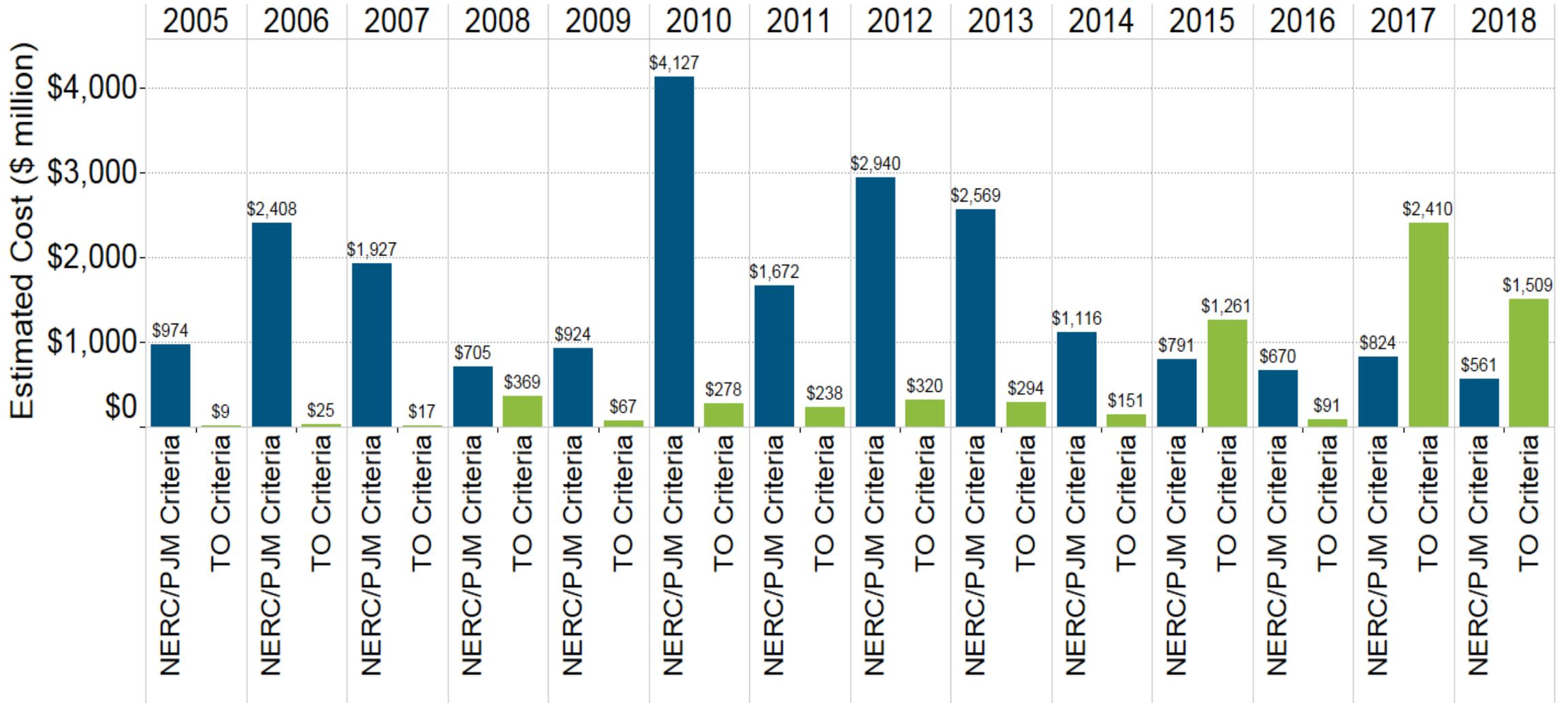
Equipment Material Condition, Performance and Risk	\$2,338
Operational Flexibility and Efficiency	\$960
Customer Service	\$60
Multiple Drivers	\$2,377

Estimated Cost of Supplemental Projects with Multiple Drivers



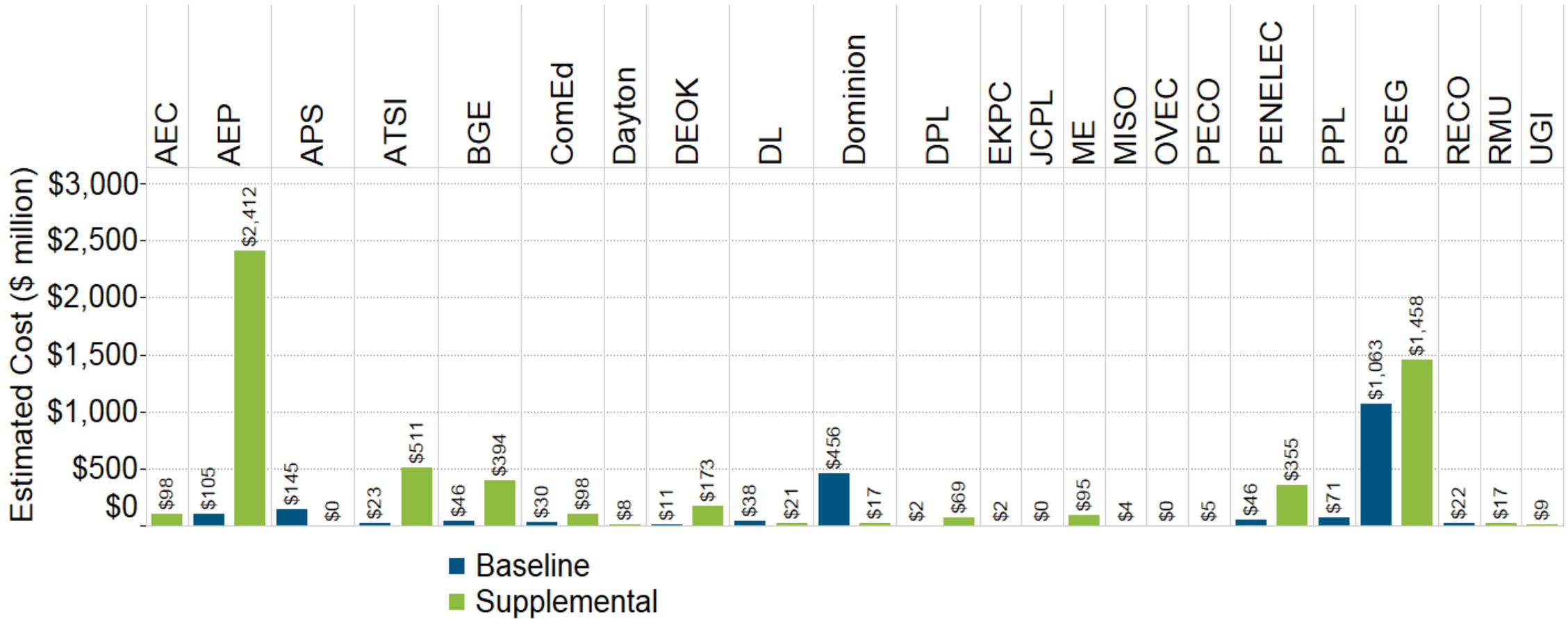
Equipment Material Condition, Performance and Risk / Customer Service	\$105
Equipment Material Condition, Performance and Risk / Infrastructure Resilience	\$532
Equipment Material Condition, Performance and Risk / Infrastructure Resilience / Customer Service	\$0
Equipment Material Condition, Performance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

Note: updated drivers originally categorized as "Null" or "Other"





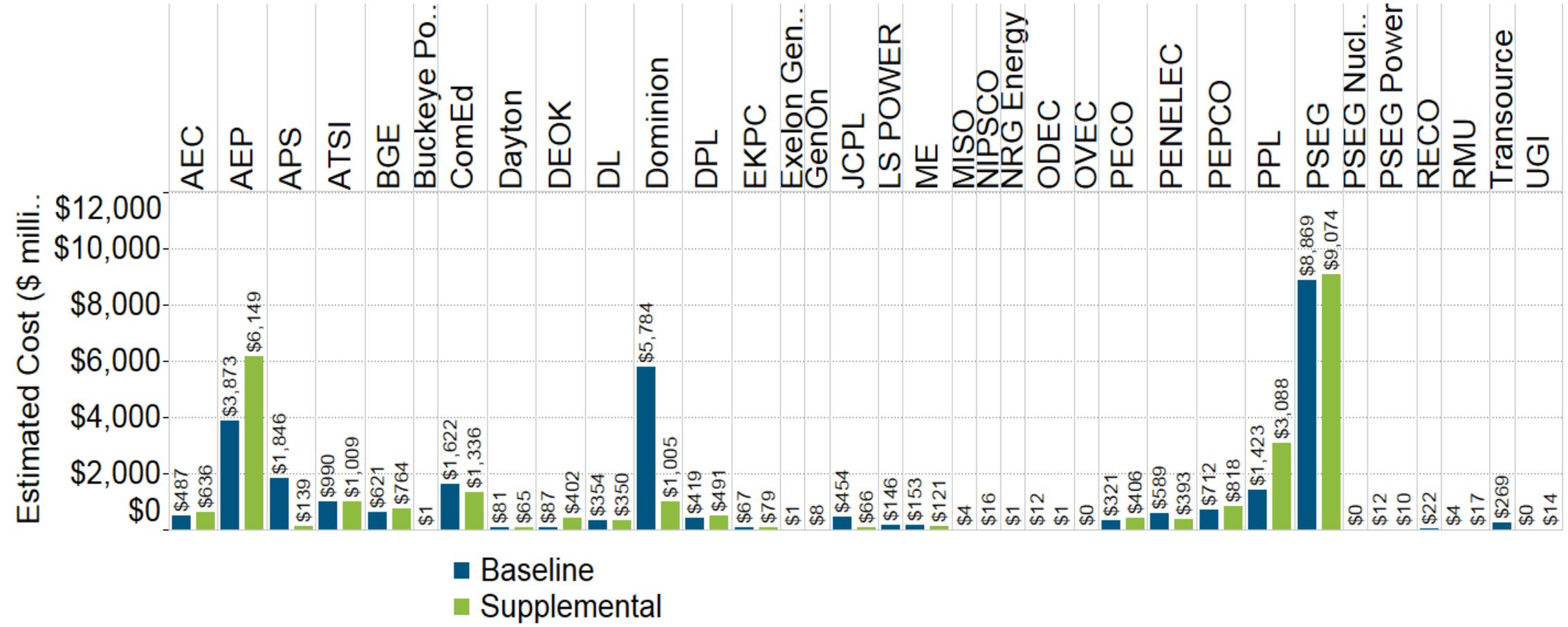
Distribution of New Baseline and Supplemental Projects Approved by the PJM Board (baseline) or Presented (supplemental) in 2018



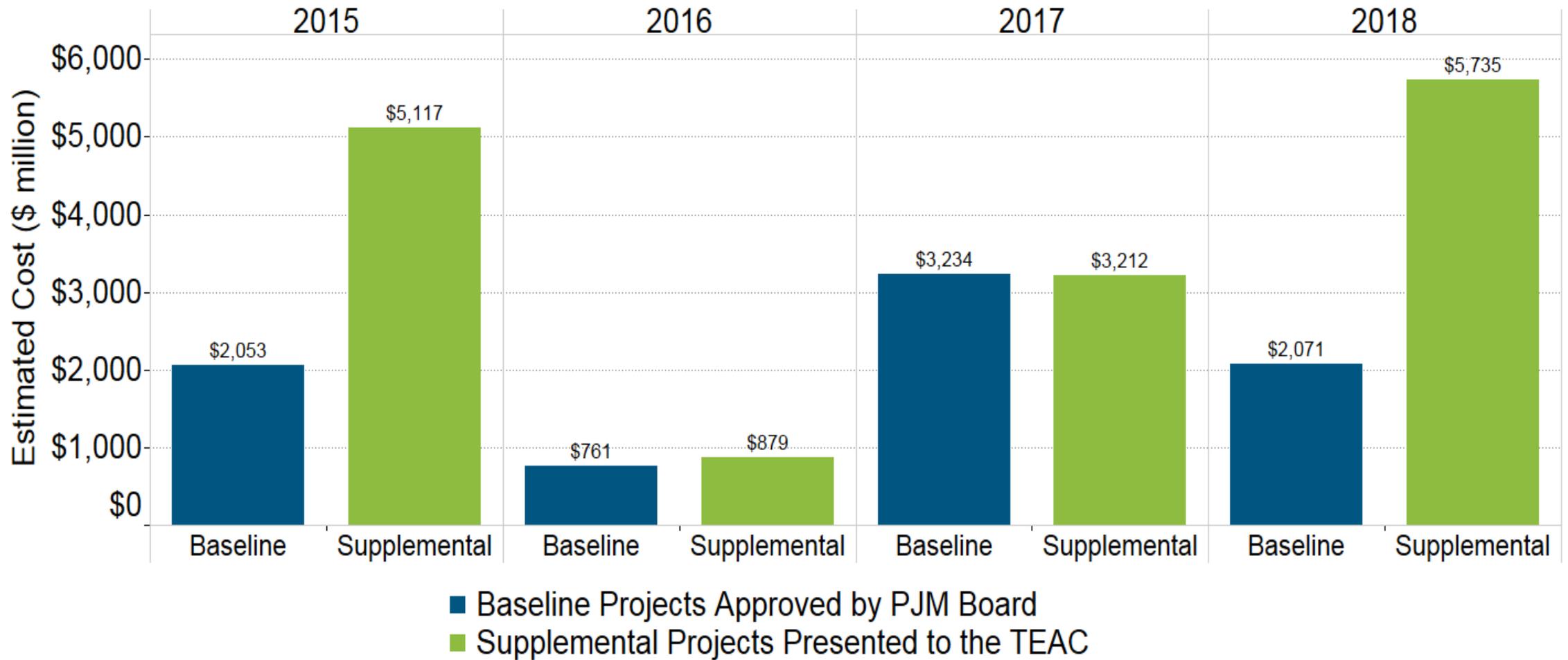


Distribution of New Baseline and Supplemental Projects

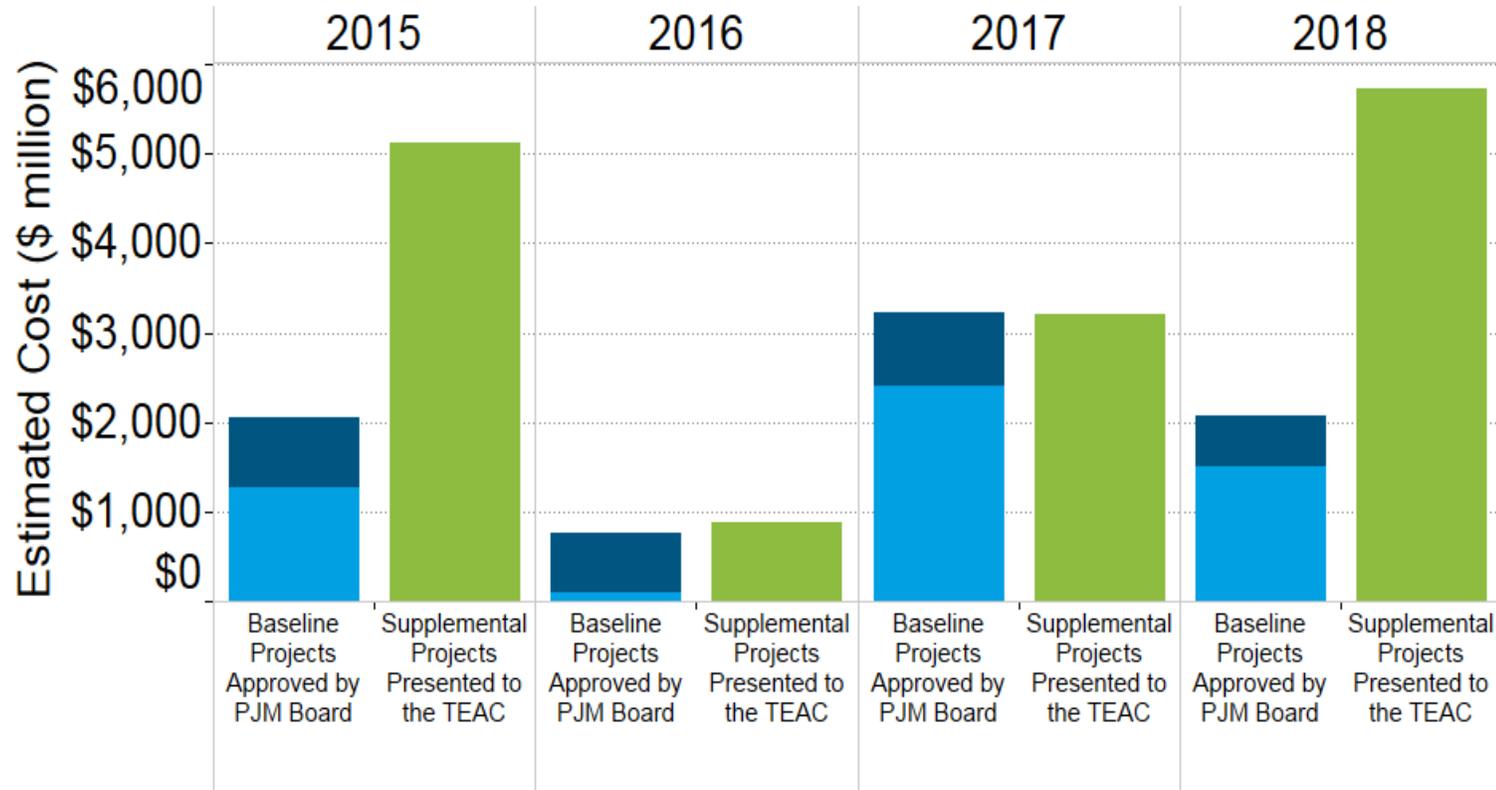
Approved by the PJM Board (baseline) or Presented (supplemental) since 2005



Baseline and Supplemental Projects by Year

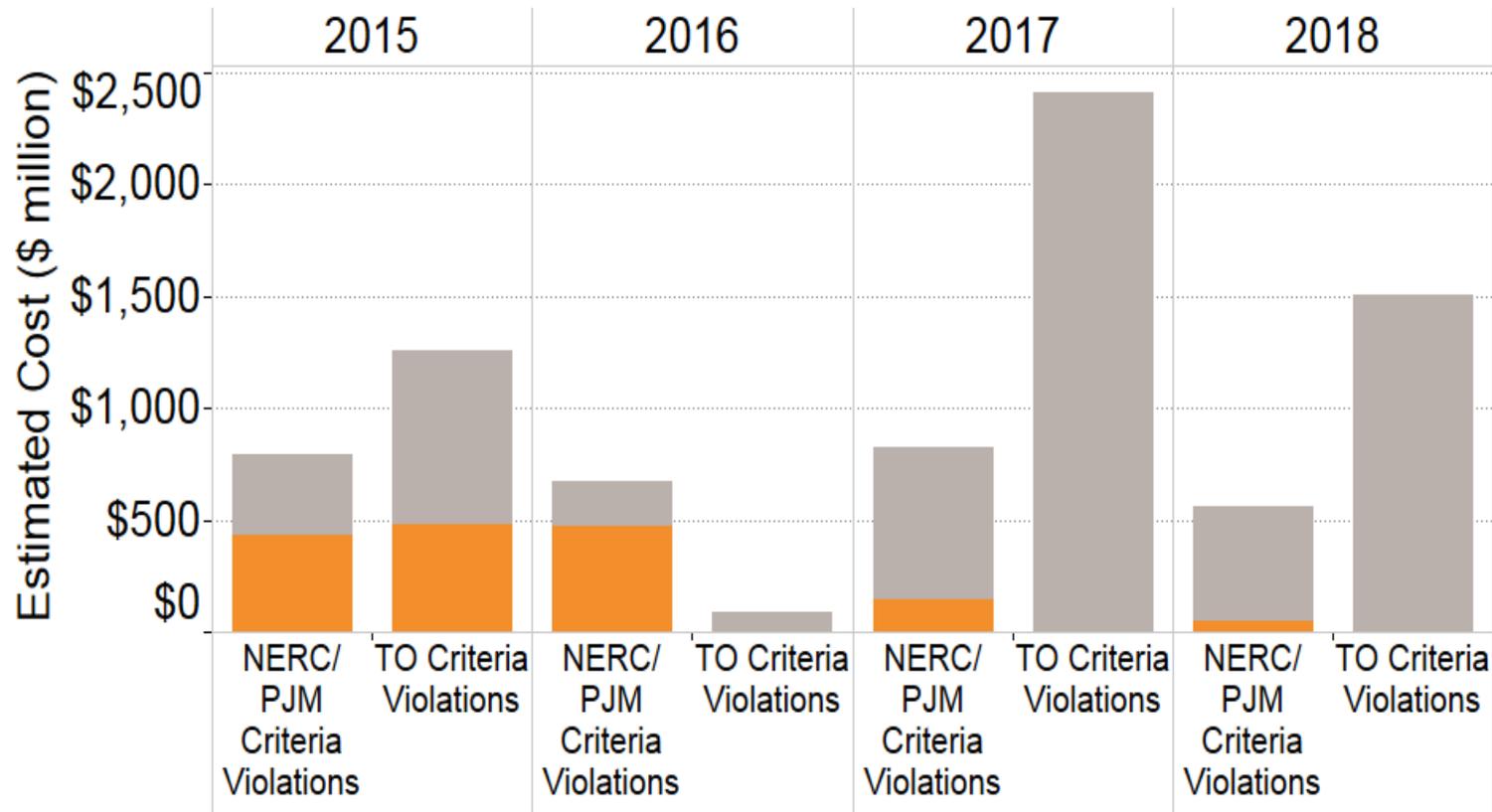


Baseline and Supplemental Projects by Year



	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

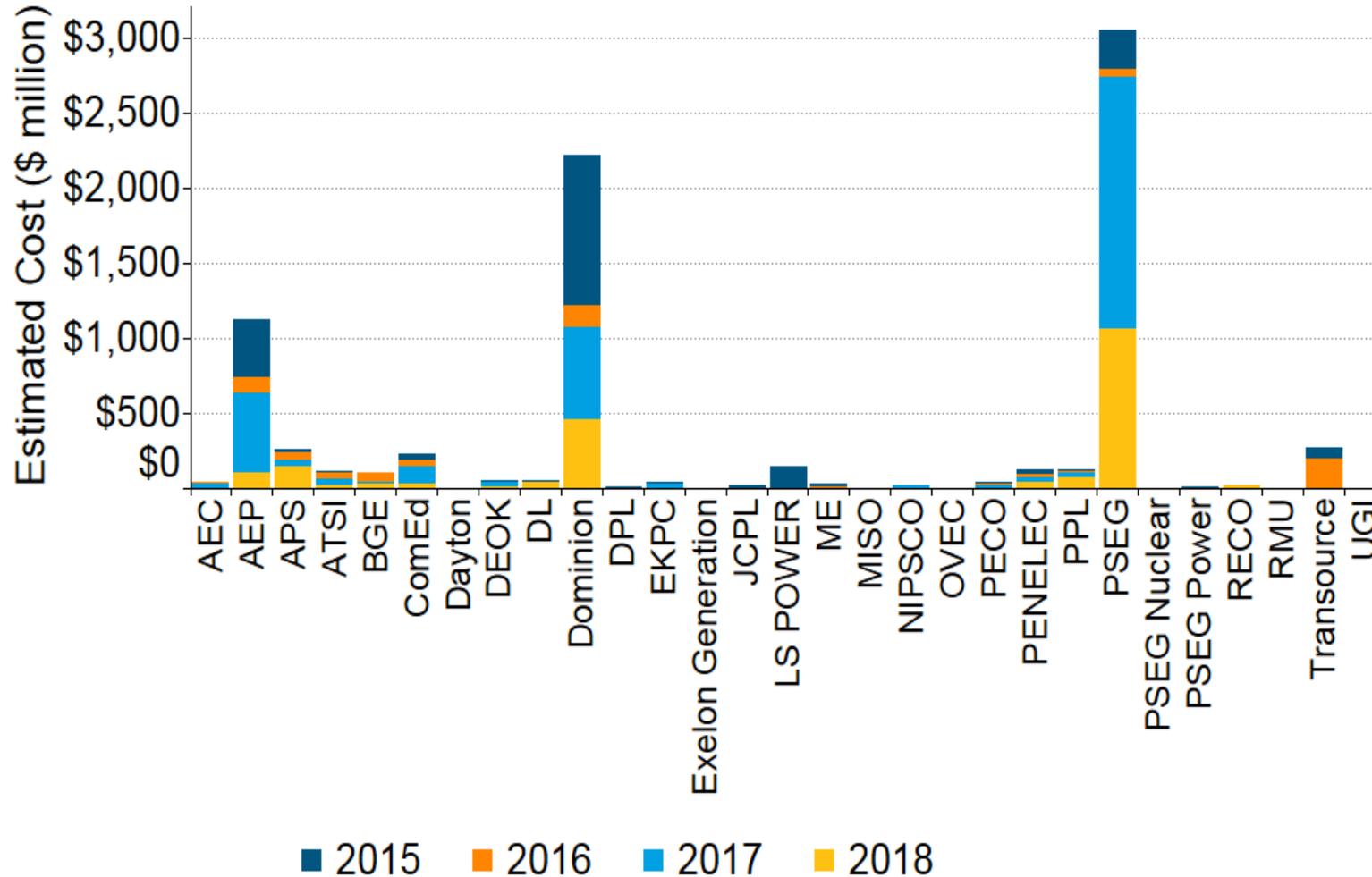
- NERC/PJM Criteria Violations
- TO Criteria Violations
- Supplemental Projects



	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

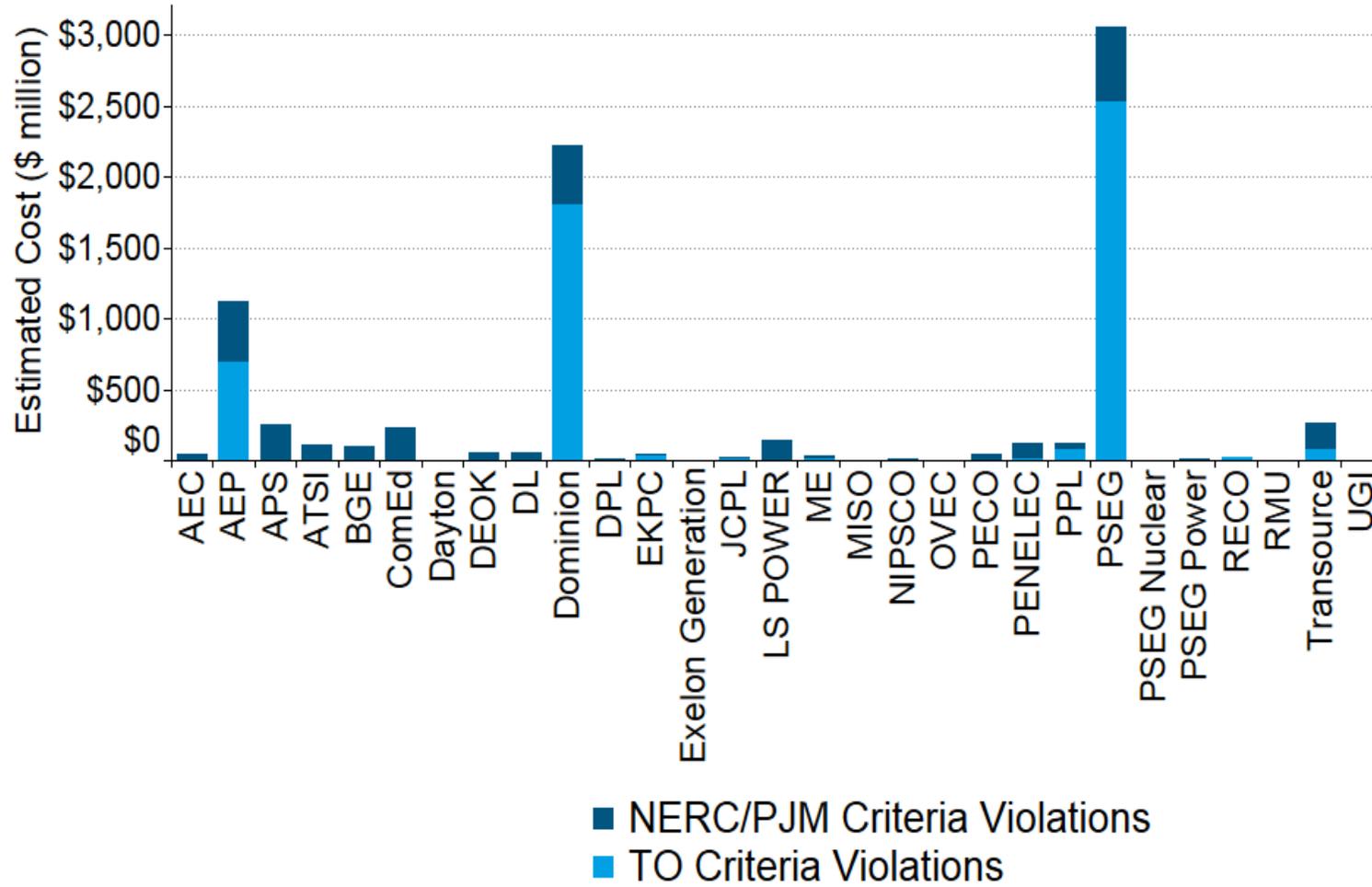
Baseline Projects by Designated Entity Approved by PJM Board 2015-2018



	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		



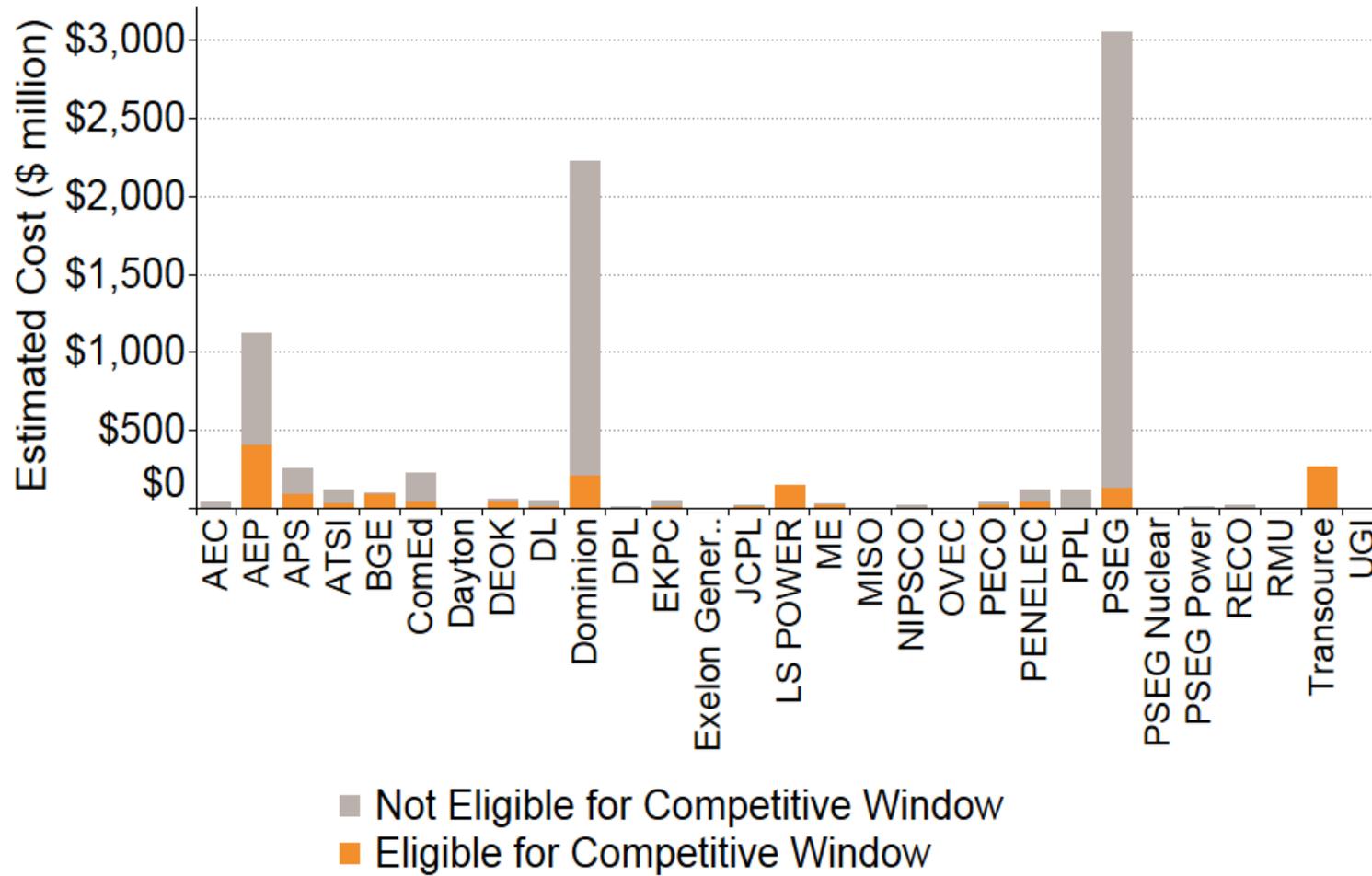
Baseline Projects by Designated Entity Approved by PJM Board 2015 - 2018



	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

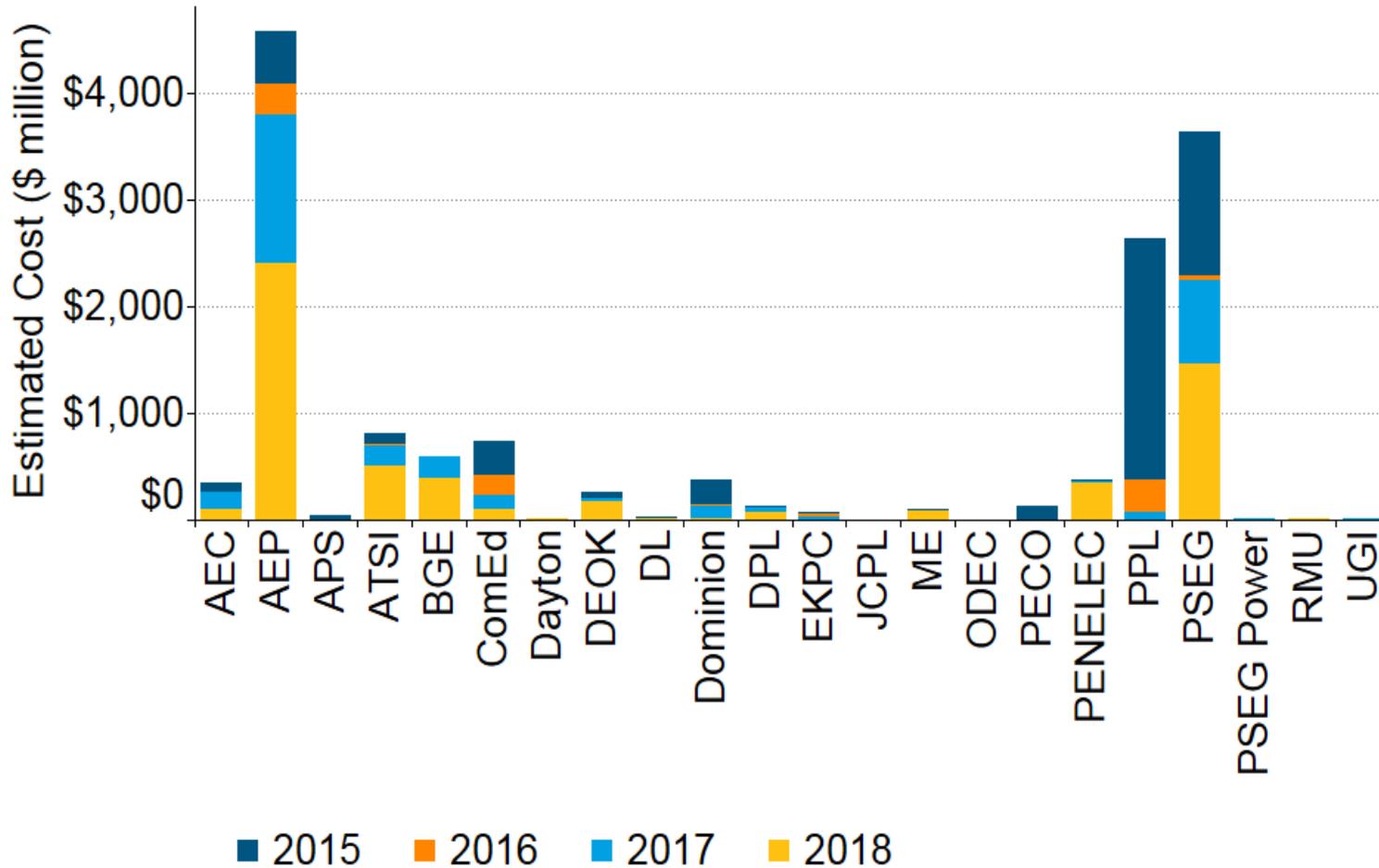


	Eligible for Competitive Window	Not Eligible for Competitive Window
AEC		\$39
AEP	\$402	\$724
APS	\$87	\$171
ATSI	\$33	\$82
BGE	\$93	\$6
ComEd	\$43	\$183
Dayton		\$1
DEOK	\$40	\$16
DL	\$11	\$40
Dominion	\$203	\$2,020
DPL	\$4	\$5
EKPC	\$6	\$39
Exelon Generation		\$1
JCPL	\$23	\$1
LS POWER	\$146	
ME	\$15	\$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



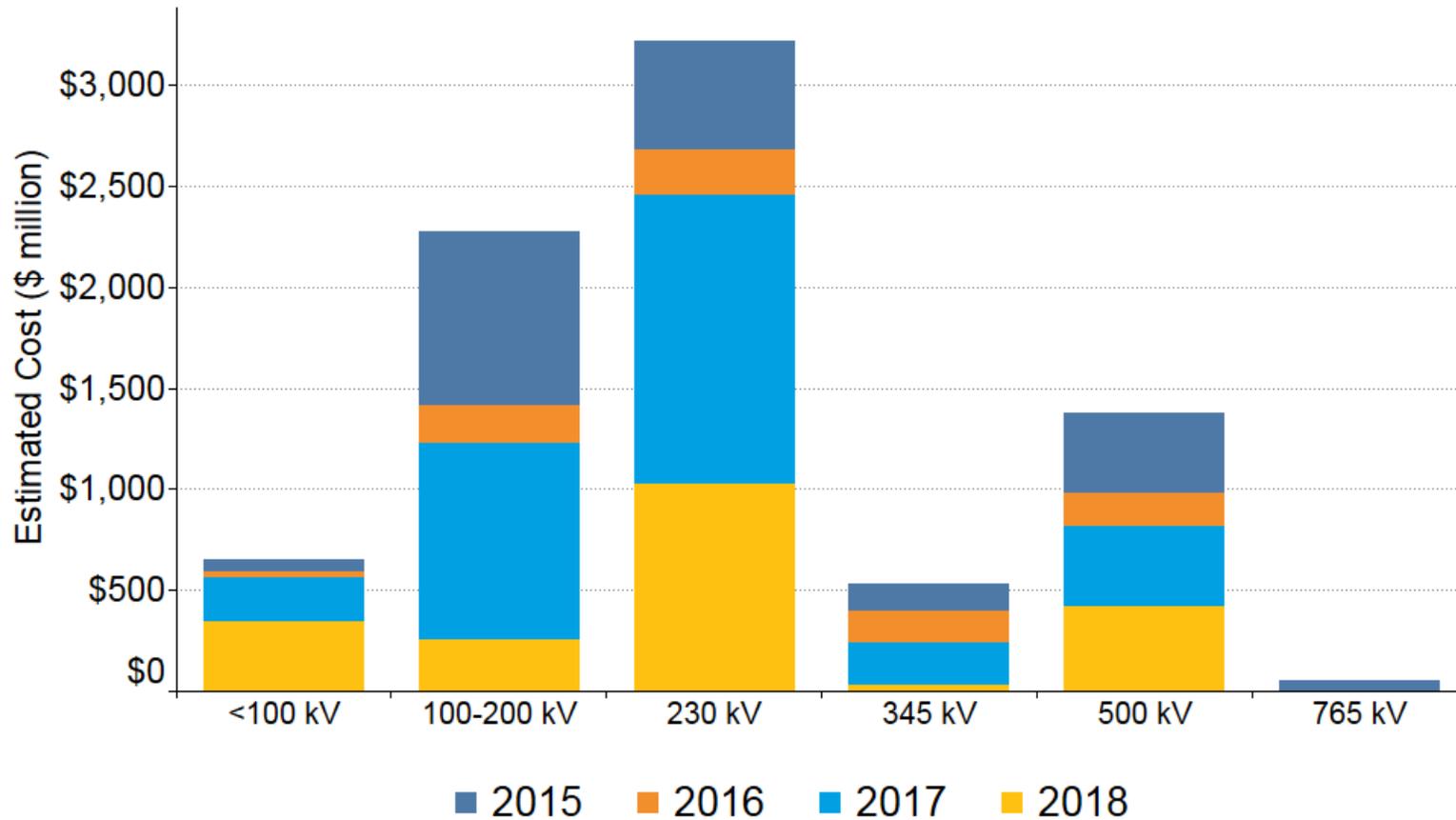
Supplemental Projects by Transmission Owner

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				
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

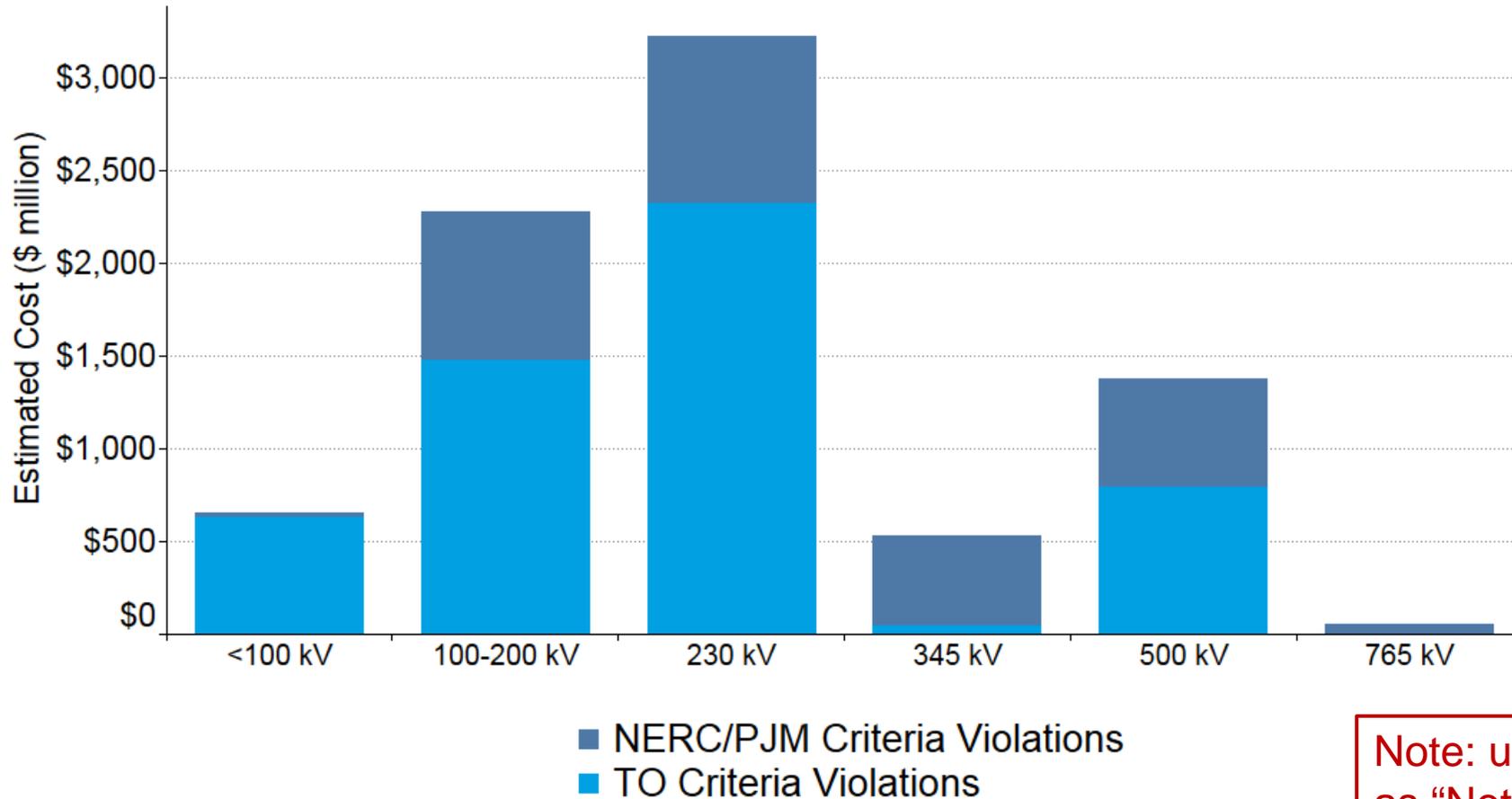


	2015	2016	2017	2018
<100 kV	\$65	\$25	\$219	\$345
100-200 kV	\$860	\$186	\$979	\$253
230 kV	\$543	\$223	\$1,431	\$1,026
345 kV	\$135	\$161	\$208	\$29
500 kV	\$399	\$165	\$398	\$418
765 kV	\$52			

Note: updated voltage categorized as “Not Specified” previously



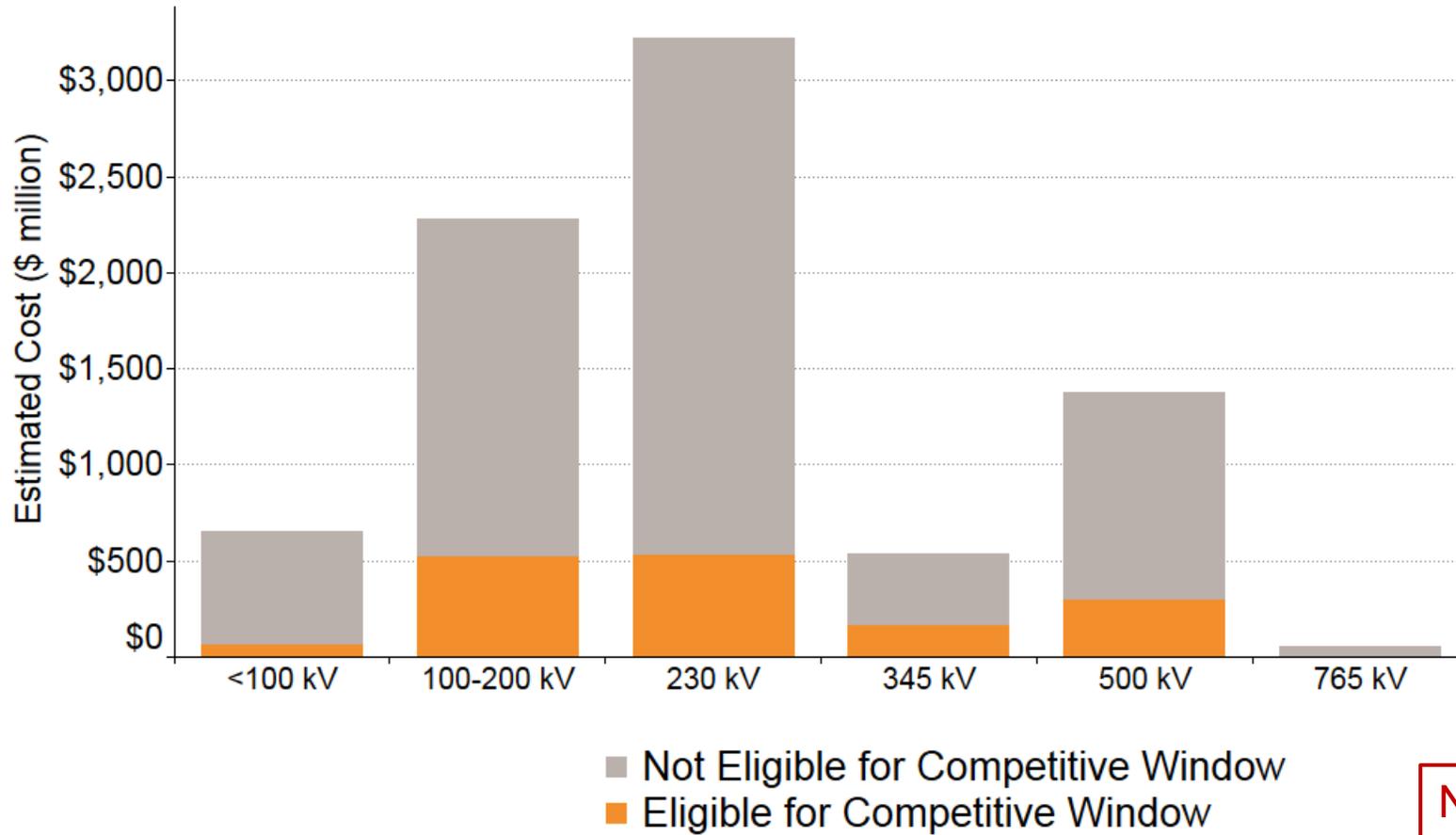
Baseline Projects by Voltage Approved by PJM Board 2015-2018



	NERC/ PJM Criteria Violations	TO Criteria Violations
<100 kV	\$25	\$630
100-200 kV	\$799	\$1,478
230 kV	\$898	\$2,325
345 kV	\$490	\$43
500 kV	\$583	\$796
765 kV	\$52	

Note: updated voltage categorized as "Not Specified" previously

Baseline Projects by Voltage Approved by PJM Board 2015-2018

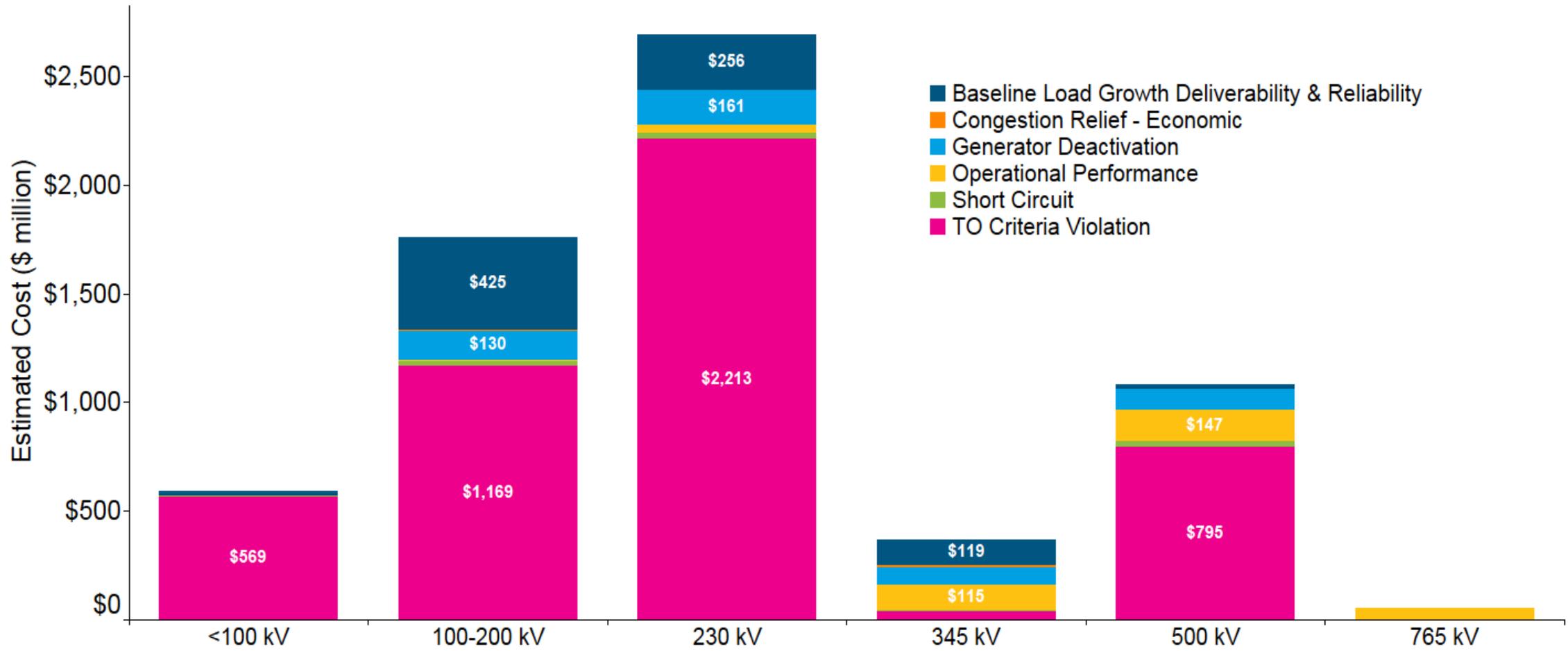


	Eligible for Competitive Window	Not Eligible for Competitive Window
<100 kV	\$63	\$591
100-200 kV	\$518	\$1,759
230 kV	\$532	\$2,690
345 kV	\$164	\$369
500 kV	\$297	\$1,082
765 kV	\$1	\$51

Note: updated voltage categorized as "Not Specified" previously

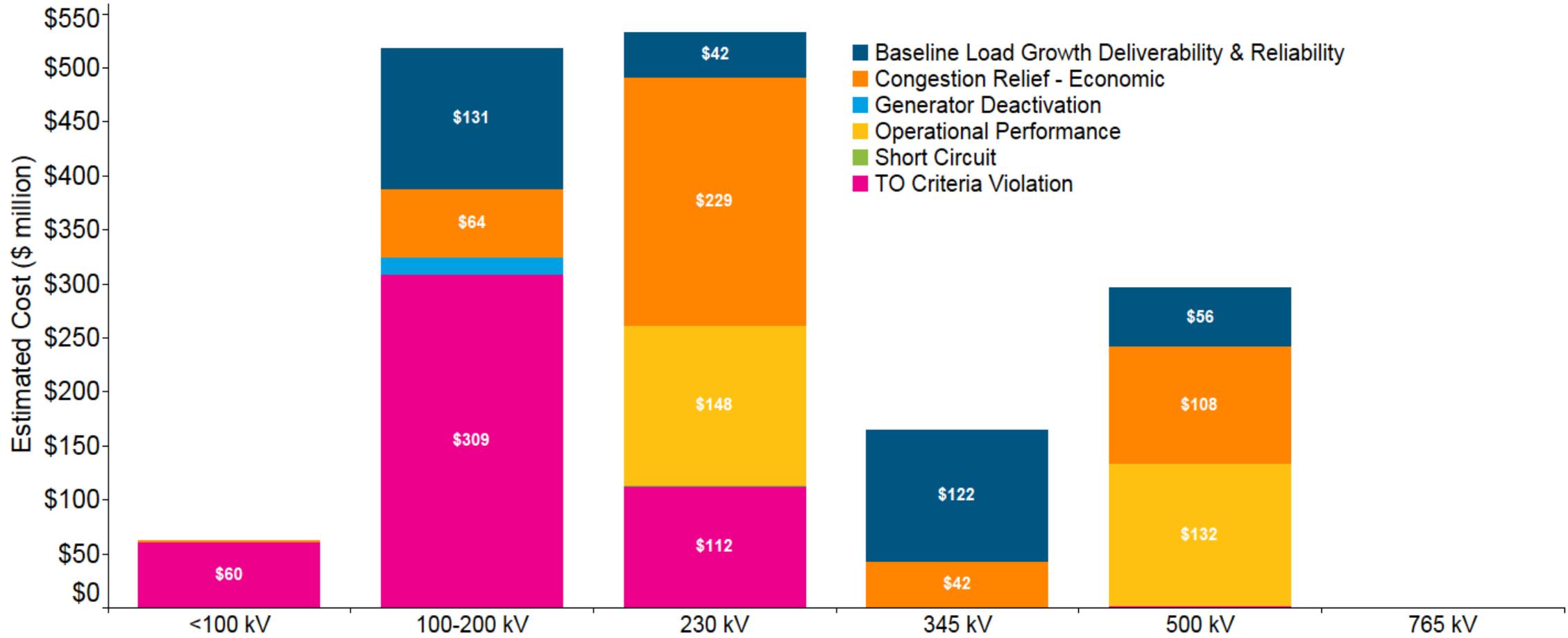
Baseline Projects Not Eligible for Competitive Window Approved by PJM Board 2015-2018

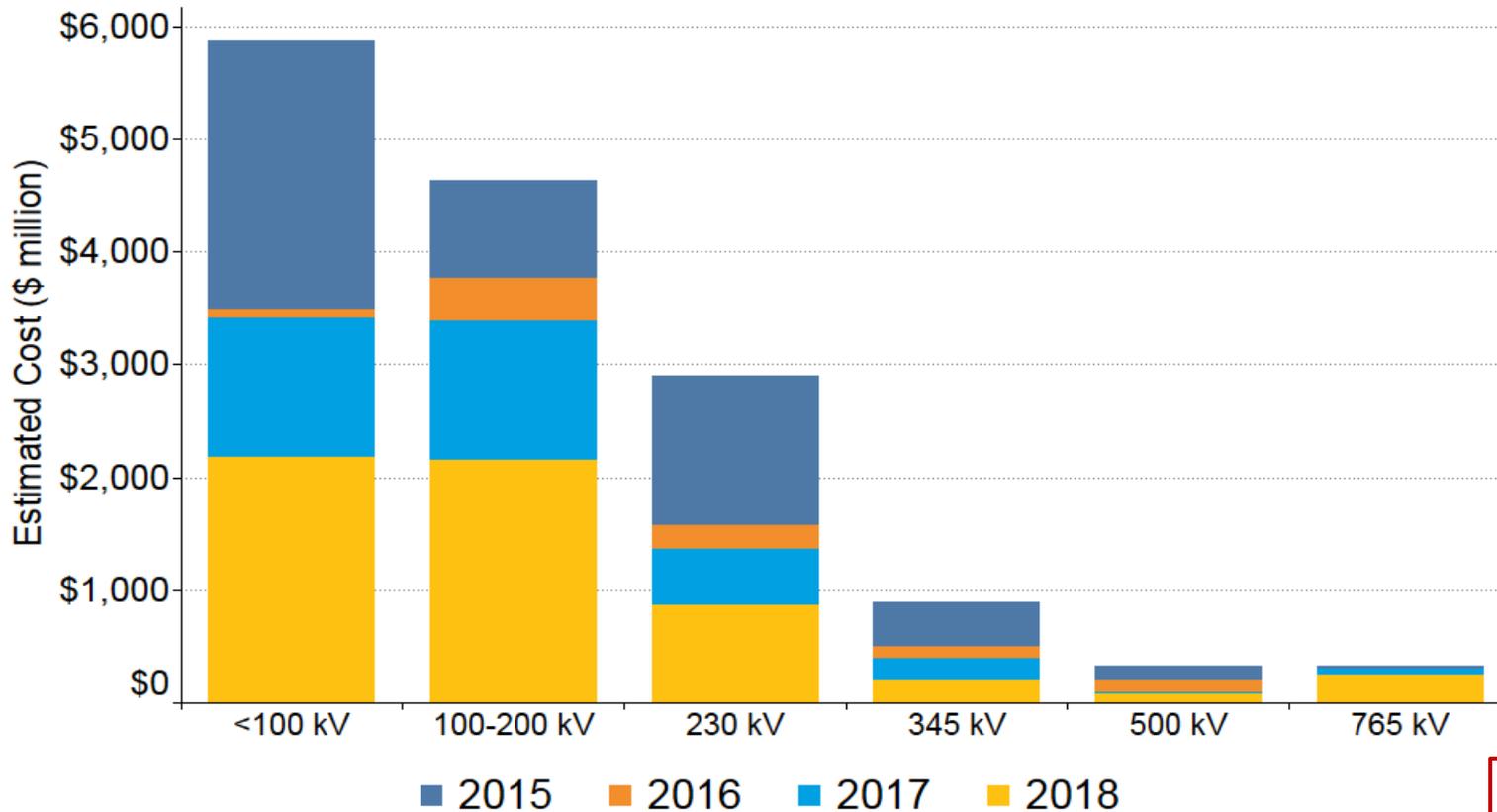
New Slide



Baseline Projects Eligible for Competitive Window Approved by PJM Board 2015-2018

New Slide





	2015	2016	2017	2018
<100 kV	\$2,386	\$81	\$1,234	\$2,174
100-200 kV	\$863	\$381	\$1,232	\$2,152
230 kV	\$1,331	\$206	\$490	\$873
345 kV	\$388	\$105	\$204	\$196
500 kV	\$130	\$105	\$3	\$85
765 kV	\$19	\$50	\$255	

Note: updated voltage categorized as "Not Specified" previously

- V1 – 01/07/2019 – Original Slides Posted
- V2 – 02/01/2019 – Updated Slides Posted