AMP/ODEC
Presentation to MRC

December 20, 2018

Overall Manual 14B Effort

- Great deal of progress made
- Major overhaul of document
- Rigorous conversations leading to improved mutual understanding
- Two areas remain to be resolved:
  - “Useful”
  - Section 1.5.4 Supplemental Planning

“Useful”

- **New term in the PJM arena**

- ***Concern:***
  - ***Connotes accounting term associated with a depreciable life***
  - ***Unnecessarily narrow; properly maintained facilities can last beyond their depreciable life***
  - ***Unintended consequence of replacing facilities simply because they are fully depreciated***

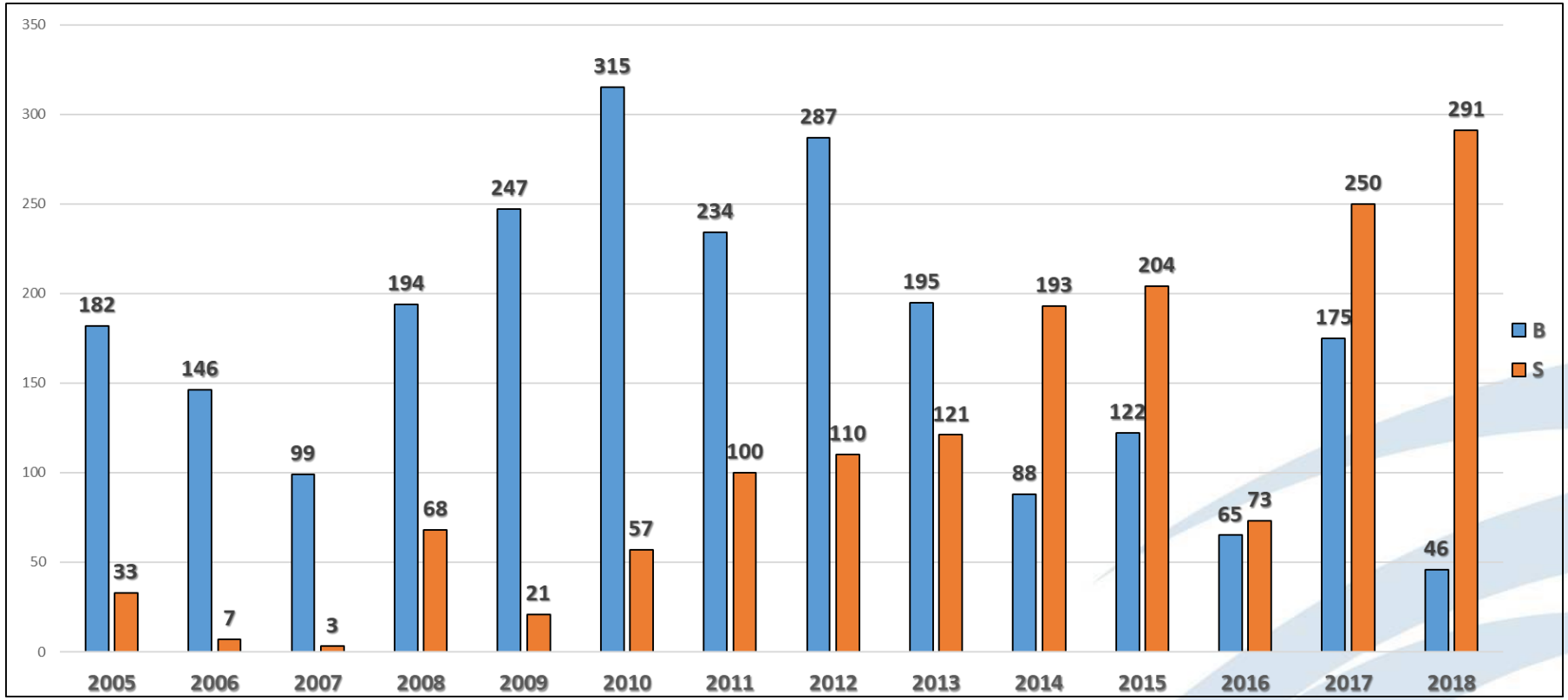
Useful

- “The useful life of an asset is an ***accounting estimate*** of the number of years it is likely to remain in service for the purpose of cost-effective revenue generation. The Internal Revenue Service employs useful life estimates to determine ***the amount of time during which an asset can be depreciated.*** There are a variety of factors that can affect useful life estimates, including usage patterns, the age of the asset at the time of purchase and technological advances.” www.investopedia.com/terms/u/usefullife.asp
- “The useful life concept as employed within a business does not necessarily reflect the entire lifespan of an asset; it may be sold off to a third party, which then continues to use the asset for an extended period of time. Thus, the useful life figure used by a business may be a subset of an asset's actual usage period.” www.accountingtools.com/articles/2017/5/11/useful-life

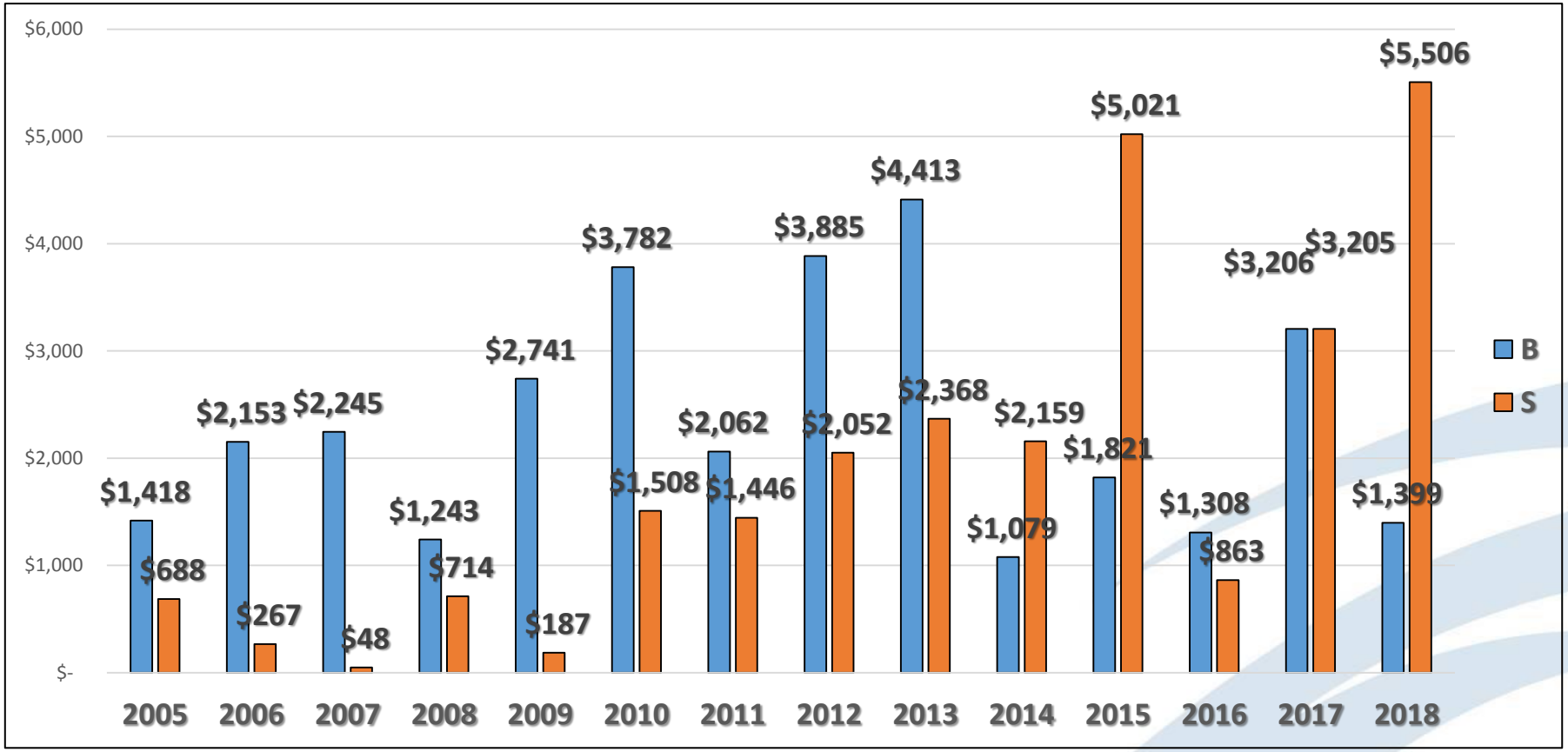
Useful

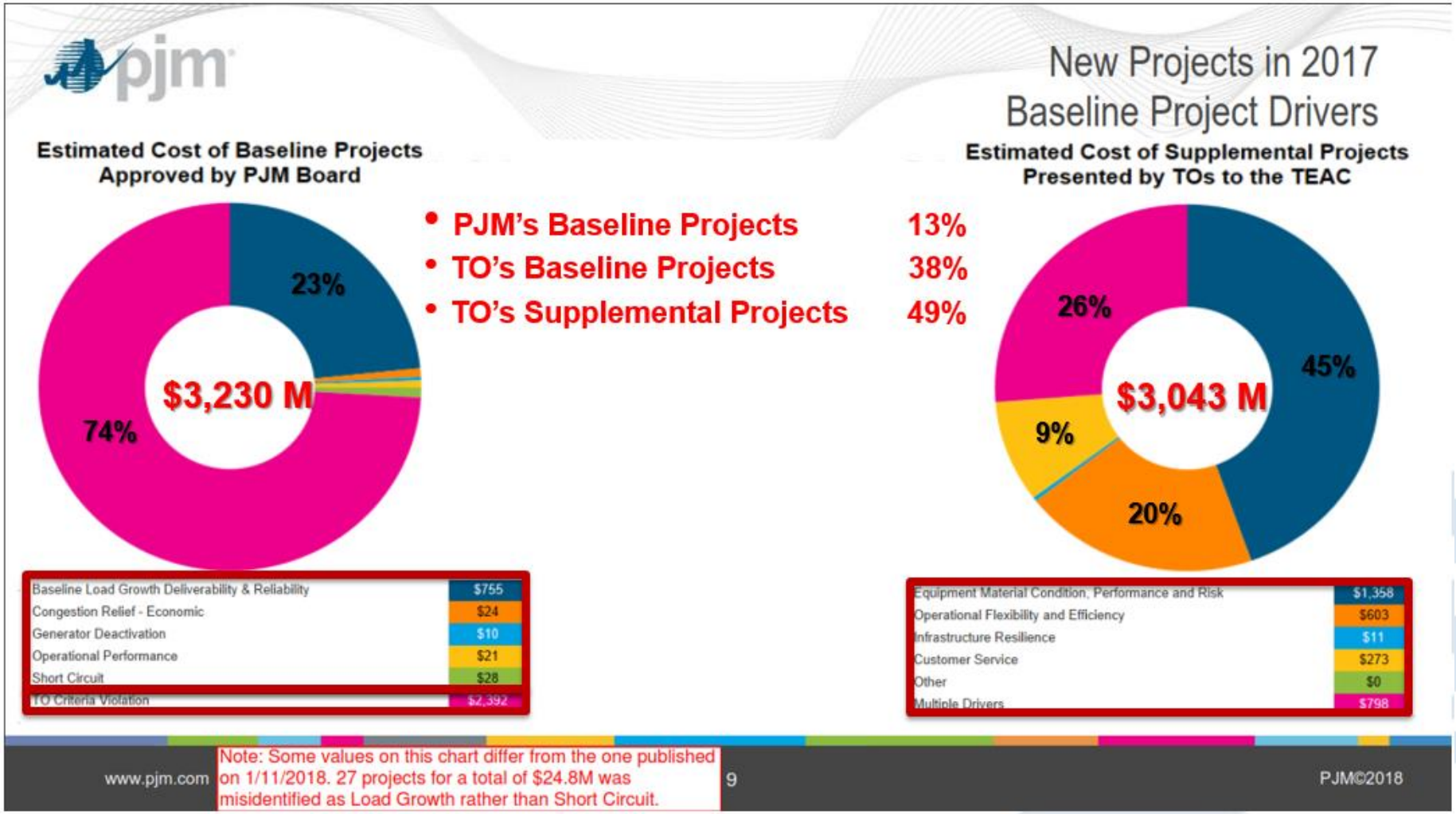
- Suggest removing “useful” when talking about end of life projects
- Alternatively, could replace “useful” with “operational” as the PJM TOs did in the FERC filing for the Show Cause Order, P4 Docket EL16-071 […replacing equipment that has reached the end of its operational life…]
- Either way is acceptable to AMP/ODEC, but leaving “useful” is not acceptable

Number of PJM TO's
Baseline Vs Supplement Projects



Cost of PJM TO's
Baseline Vs Supplement Projects

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New Projects in 2017
Baseline Project Drivers
Estimated Cost of Baseline Projects
Approved by PJM Board
$3,230 M
23%
74%
Baseline Load Growth Deliverability & Reliability $755
Congestion Relief - Economic $24
Generator Deactivation $10
Operational Performance $21
Short Circuit $28
TO Criteria Violation $2,392
PJM's Baseline Projects 13%
TO's Baseline Projects 38%
TO's Supplemental Projects 49%
Estimated Cost of Supplemental Projects
Presented by TOs to the TEAC
$3,043 M
26%
45%
9%
20%
Equipment Material Condition, Performance and Risk $1,358
Operational Flexibility and Efficiency $603
Infrastructure Resilience $11
Customer Service $273
Other $0
Multiple Drivers $798
www.pjm.com
Note: Some values on this chart differ from the one published on 1/11/2018. 27 projects for a total of $24.8M was misidentified as Load Growth rather than Short Circuit.
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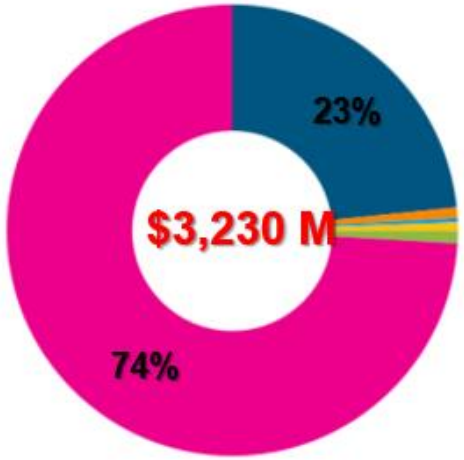
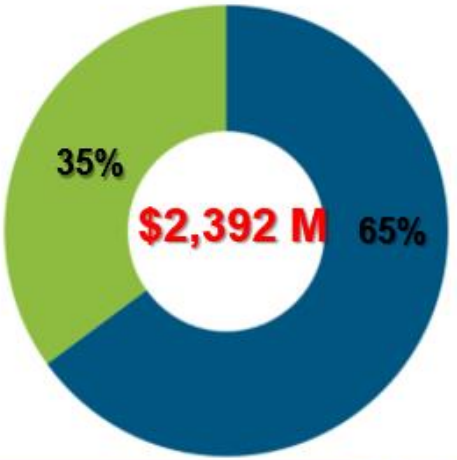
New Projects in 2017
Baseline Project Drivers

Estimated Cost of Baseline Projects Approved by PJM Board



- **65% of TO "Criteria Violation" Baseline Projects were associated with End-of-Life Drivers**
- **48% of all Baseline Projects**

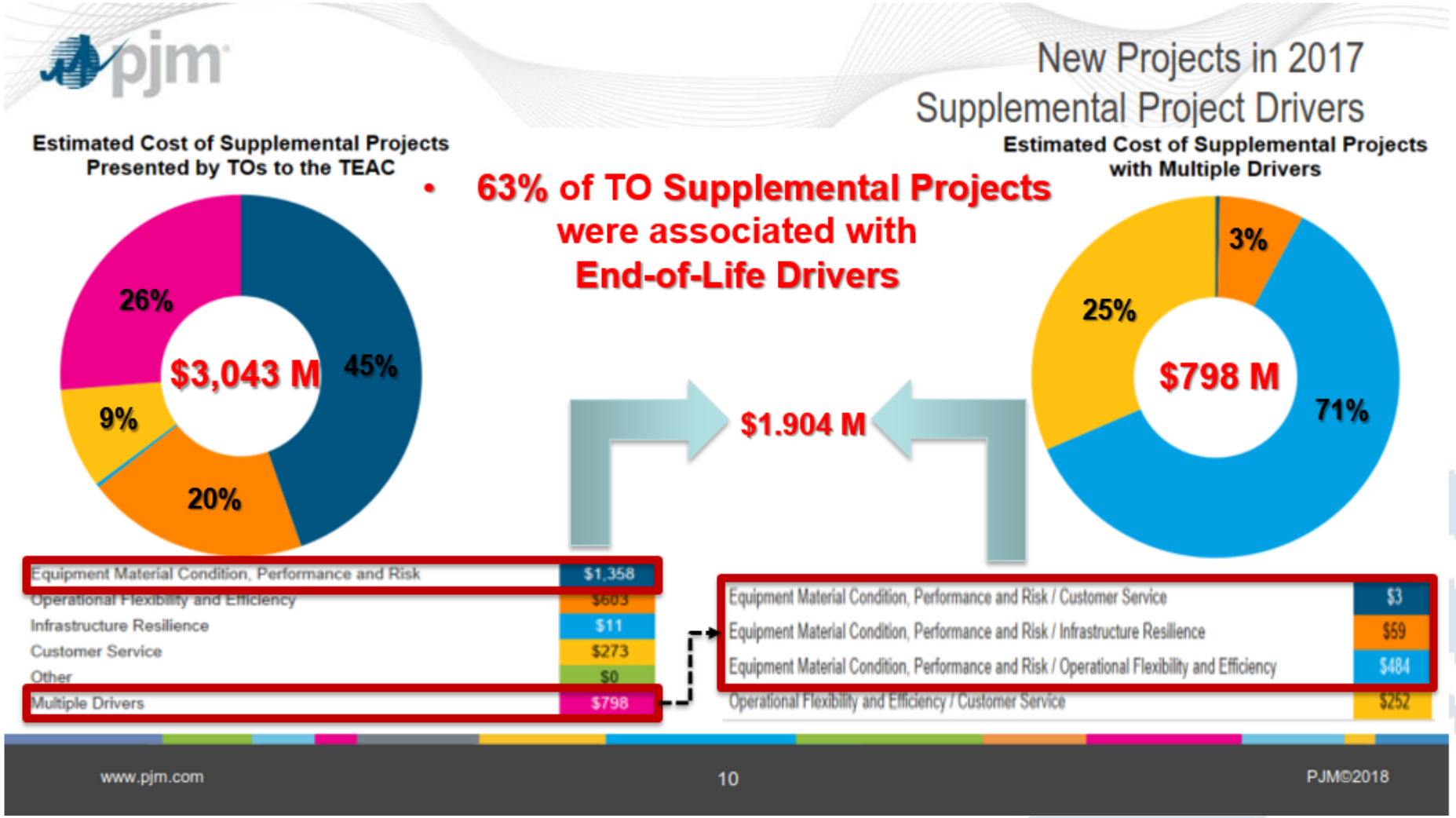
Estimated Cost of Baselines Projects Driven by TO Criteria Violations



Baseline Load Growth Deliverability & Reliability	$755
Congestion Relief - Economic	$24
Generator Deactivation	$10
Operational Performance	$21
Short Circuit	$28
TO Criteria Violation	$2,392

Aging Infrastructure	$1,554
Other TO Criteria	$838

Note: Some values on this chart differ from the one published on 1/11/2018. 27 projects for a total of $24.8M was misidentified as Load Growth rather than Short Circuit.


New Projects in 2017
Supplemental Project Drivers
Estimated Cost of Supplemental Projects Presented by TOs to the TEAC
$3,043 M
45%
20%
9%
26%
• 63% of TO Supplemental Projects were associated with End-of-Life Drivers
$1.904 M
Equipment Material Condition, Performance and Risk $1,358
Operational Flexibility and Efficiency $603
Infrastructure Resilience $11
Customer Service $273
Other $0
Multiple Drivers $798
Estimated Cost of Supplemental Projects with Multiple Drivers
$798 M
71%
25%
3%
Equipment Material Condition, Performance and Risk / Customer Service $3
Equipment Material Condition, Performance and Risk / Infrastructure Resilience $59
Equipment Material Condition, Performance and Risk / Operational Flexibility and Efficiency $484
Operational Flexibility and Efficiency / Customer Service $252
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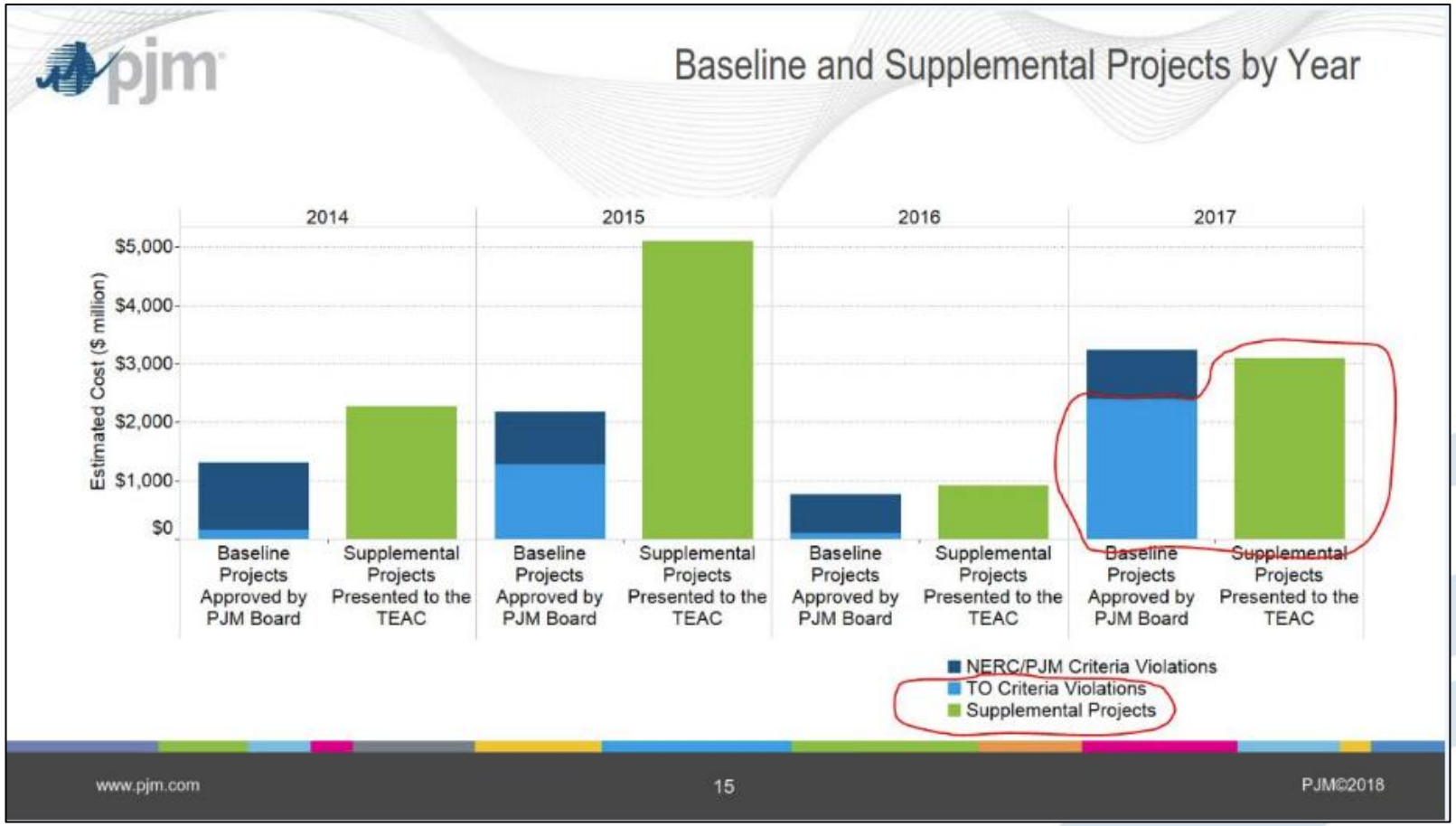
Approximately 88% (Cost) of 2017 projects were TO-driven



Scope of ISO/RTO Oversight in U.S. Transmission Investments

Of $70 billion in transmission investments by FERC-jurisdictional TOs in ISO/RTO regions over the last 4-5 years, almost **half was made without full ISO/RTO and stakeholder engagement** in the planning process

- Investments based on local planning processes of incumbent TOs are only subject to limited ISO/RTO review
- FERC's August 31 Order (Docket No. EL17-45, still subject to rehearing): only transmission "expansion" activities are subject to full regional planning requirements

Transmission Investments Subject to Full or Limited Review in ISO/RTO Regional Planning Processes

	Years Reviewed	FERC Jurisdictional Additions by Transmission Owners (nominal $million, based on FERC Form 1 Filings)	Investments Approved Through Full ISO/RTO Planning Process (nominal $million)	% of Total FERC Jurisdictional Investments Approved Through Full ISO/RTO Planning Process	% of Total FERC Jurisdictional Investments with Limited ISO/RTO Review
CAISO	2014 - 2016	$7,528	$4,043	54%	46%
ISO-NE	2013 - 2017	$7,488	$5,300	71%	29%
MISO	2013 - 2017	$15,530	$8,068	52%	48%
NYISO	2013 - 2017	$2,592	n/a	n/a	n/a
PJM	2013 - 2017	$31,469	$14,458	46%	54%
SPP	2013 - 2017	$6,202	$4,226	68%	32%
Total	-	**$70,810**	**$36,095**	**53%**	**47%**

Sources & Notes: *Data based on FERC Form 1 and ISO/RTO Tracking Reports[14]. CAISO data reflects only select transmission additions/approved investments of PG&E, SCE, and SDG&E for 2014 -2016, based on available data. Aggregate investment for each ISO/RTO reflects total FERC Form 1 transmission additions over indicated time periods. Investments approved by ISO/RTO reflects total value of transmission additions placed in-service over indicated time periods, approved through ISO/RTO processes.*

Supplemental Project Planning

- **P73 2/15/18 Show Cause Order :**

  Order No. 890's transparency principle "require[s] transmission providers to disclose to all customers and other stakeholders the basic criteria, assumptions, and data that underlie their transmission system plans." To comply with that requirement, transmission providers must "***reduce to writing and make available the basic methodology, criteria, and processes they use to develop their transmission plans.***" "This information should enable customers, other stakeholders, or an independent third party to ***replicate the results of planning studies*** and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion.

Supplemental Project Planning

- **P77 2/15/18 Show Cause Order :**

  Based on this evidence, we find that the PJM Transmission Owners are implementing the transmission planning process for Supplemental Projects in a manner that is inconsistent with Order No. 890's transparency principle. ***The record indicates that, in practice, the PJM Transmission Owners are providing transmission planning information, including models, criteria, and assumptions, that is inadequate to allow stakeholders to replicate their planning studies, as Order No. 890 requires.*** In addition, we find that this information is often provided too late in the transmission planning process for stakeholders to participate before the PJM Transmission Owners have taken significant steps toward developing Supplemental Projects.

Supplemental Project Planning

- **P77 2/15/18 Show Cause Order :**

  As a result, stakeholders are unable to use this information in the manner that Order No. 890 required that they be able to use it, including to "***replicate the results of planning studies and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion." Without the ability to identify the underlying transmission needs identified in the planning studies performed by the PJM Transmission Owners, stakeholders will often be ill-positioned, or entirely unable, to provide timely and meaningful input*** on those needs or the transmission solutions proposed to meet those needs, at least when those needs and solutions are presented at the same time.

Supplemental Project Planning

1.5.4 Supplemental Project Planning

The criteria for Supplemental Projects (which could include criteria required to address end of ~~useful~~ life of existing transmission facilities as determined in accordance with good utility practice) ~~and/or the PJM TO's M-3 assumptions) is driven~~are provided by each ~~PJM~~ Transmission Owner ~~and follows~~consistent with the OATT Attachment M-3 process.

Supplemental Projects should be based on written articulable criteria, models and guidelines that are measurable and, to the extent available, quantifiable (e.g., asset replacement prioritization) so stakeholders can replicate TO planning decisions and validate their proposed solutions.

In accordance with the coordination and transparency principles set forth in Order 890, for each Supplemental Project, to the extent available, each PJM TO should: (i) identify the owner of the asset(s); and (ii) provide an asset-specific condition assessment (e.g., assessments, outage history, operational challenges, etc.) that supports the need and proposed solution for the Supplemental Project consistent with the TO's models, guidelines or criteria. Also, each TO should provide the criteria, models, guidelines they utilized to identify the need and validate their proposed solutions so stakeholders can replicate their results.