



# IEEE 1547-2018 Category III – Proposed Amendment to Allow Faster Trip Times

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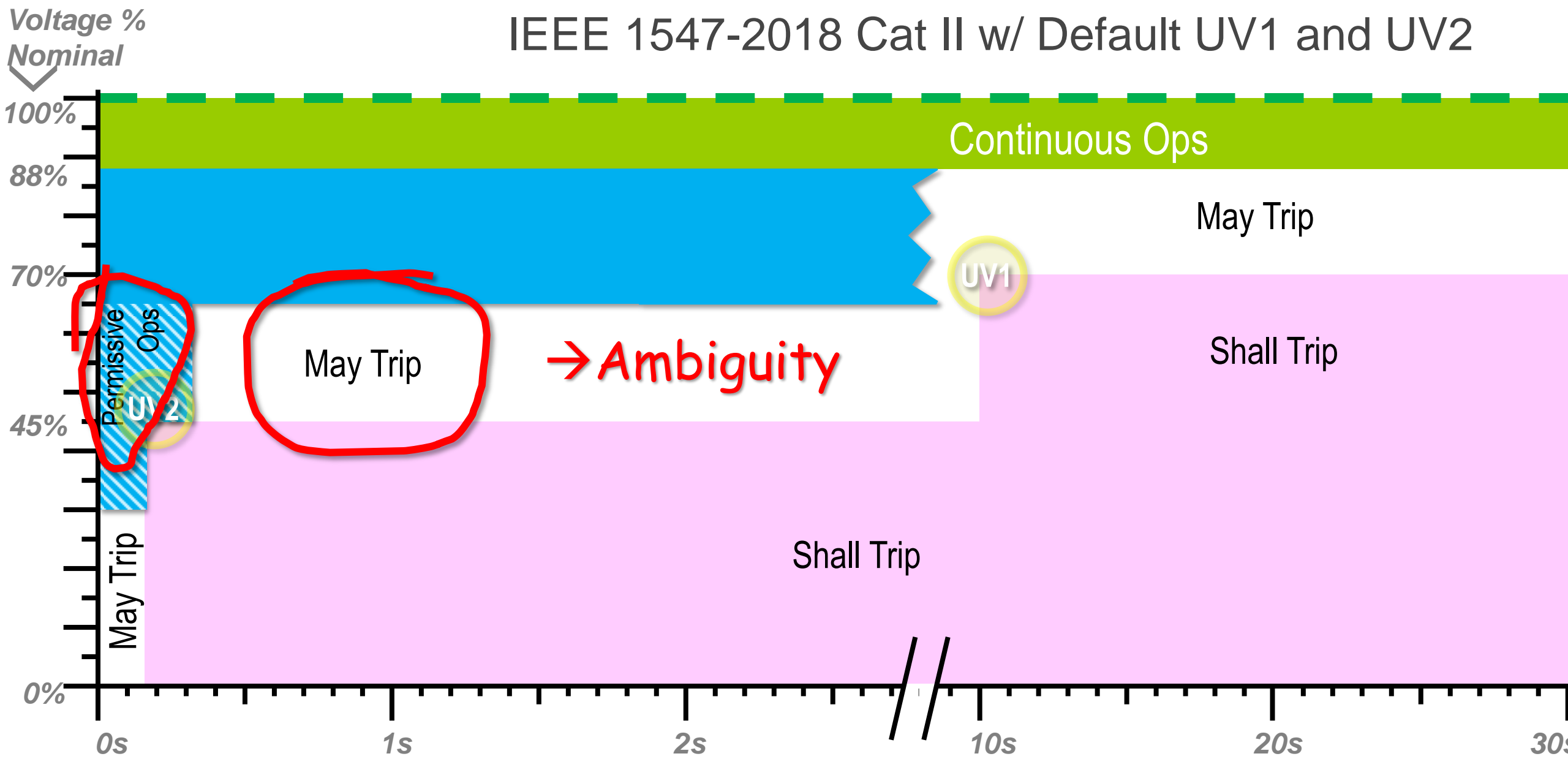
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July 8, 2019

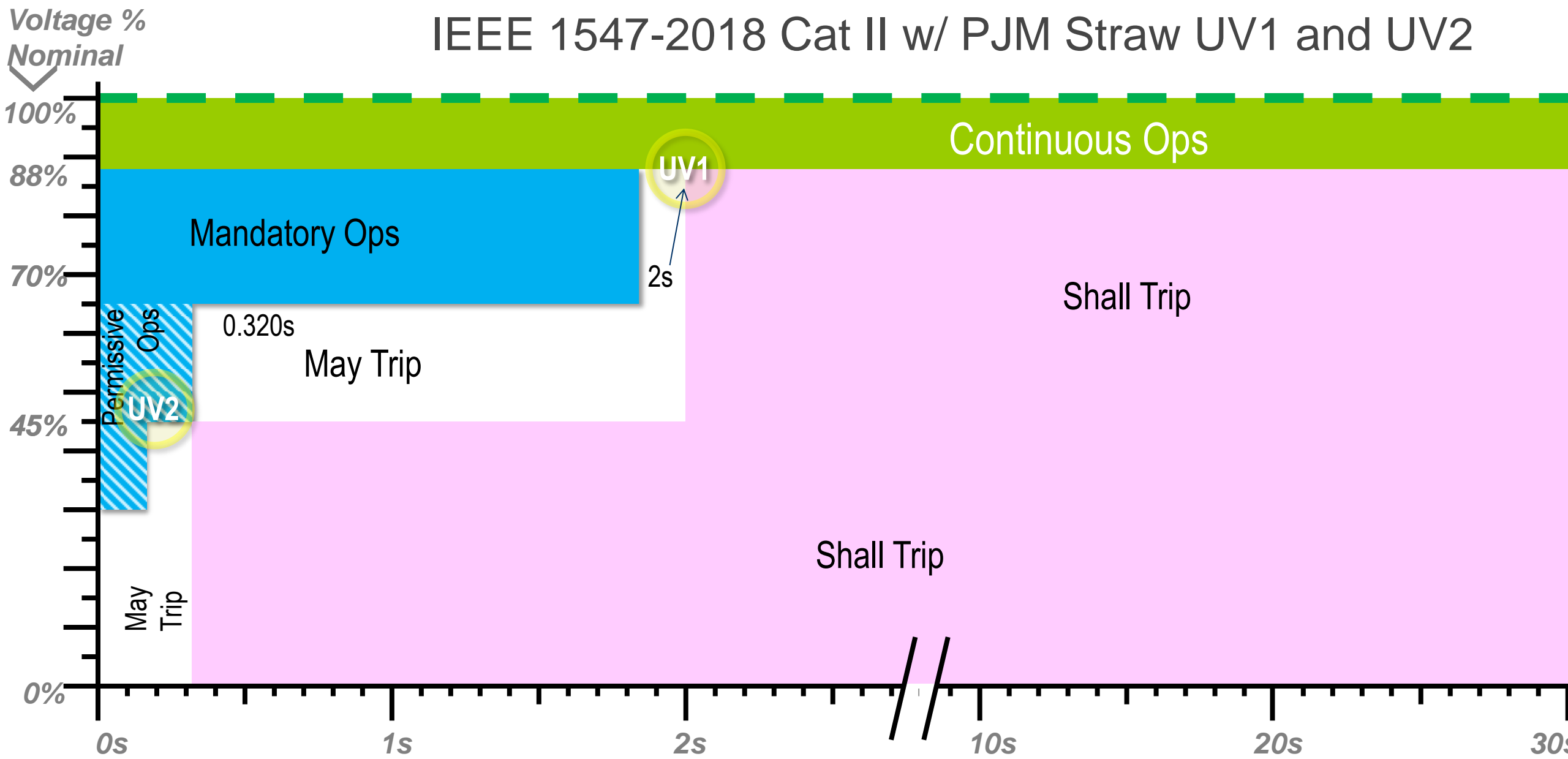
PJM DER Ride Through Task Force

- IEEE 1547-2018 Working Group is considering an amendment to allow for faster trip times in Category III that are aligned with those in Category II.
- For inverter-based DER, Category III is less ambiguous than Category II, and the requirement of Ride Through in Momentary Cessation mode for V down to 0% is more useful for both transmission and distribution interests than the approach for very low voltage in Category II.
- In response to this development, the Task Force should consider various options for its recommended solution and for drafting the guidance document.

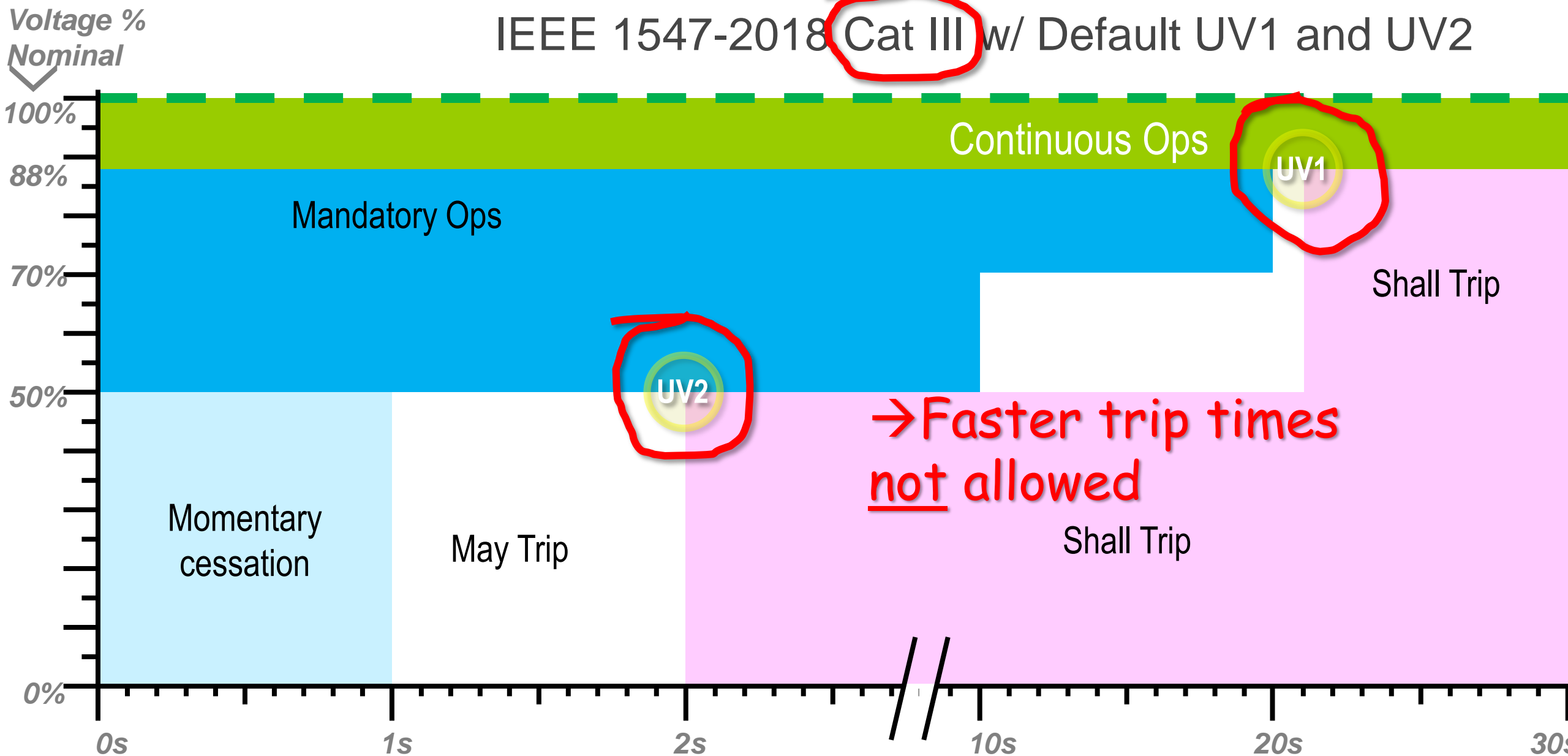
# IEEE 1547-2018 Cat II w/ Default UV1 and UV2



# IEEE 1547-2018 Cat II w/ PJM Straw UV1 and UV2

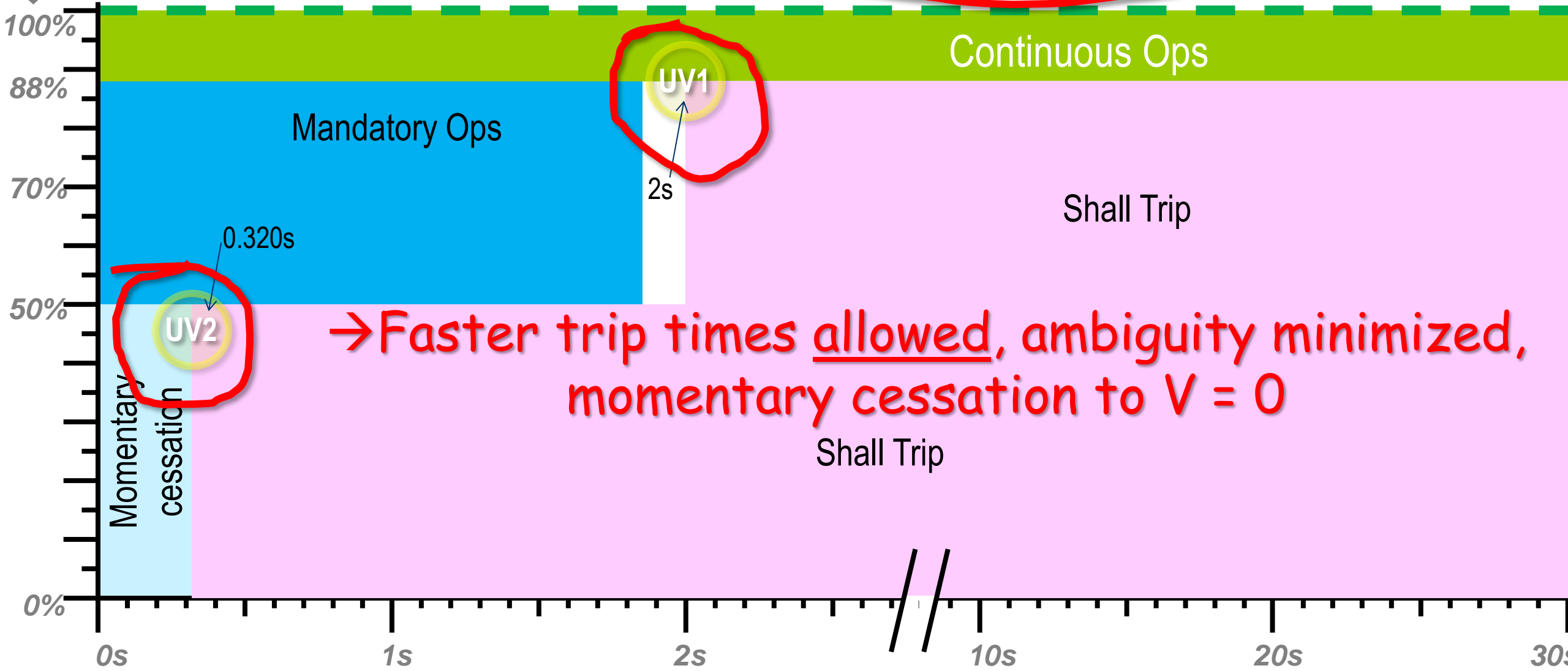


# IEEE 1547-2018 **Cat III** w/ Default UV1 and UV2



<https://www.comed.com/SiteCollectionDocuments/MyAccount/MyBillUsage/CurrentRates/Ratebook.pdf> page 659 of PDF

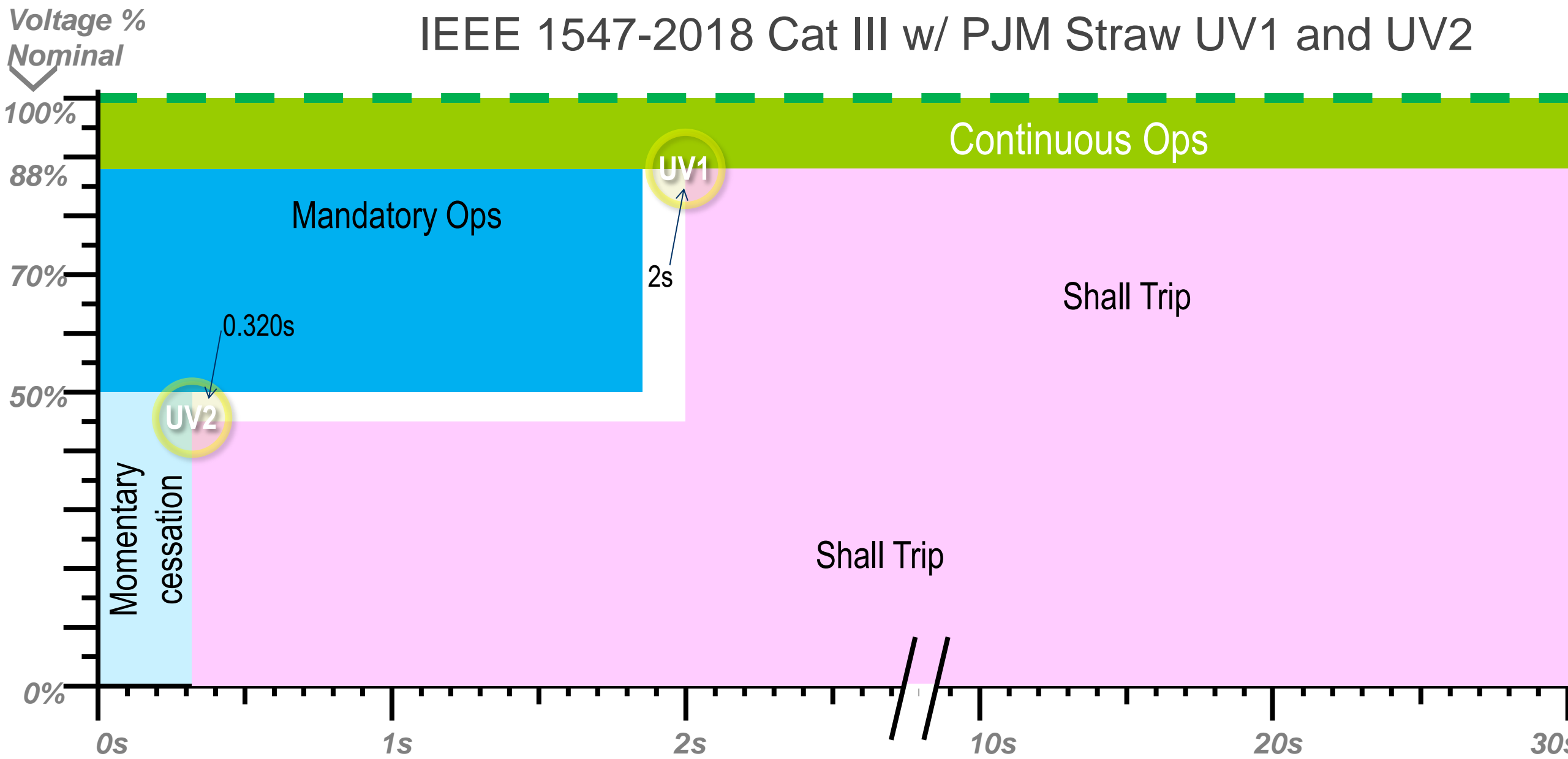
# Voltage % Nominal IEEE 1547-2018 Cat III w/ Proposed Amendment UV1 and UV2



→ Faster trip times allowed, ambiguity minimized, momentary cessation to  $V = 0$

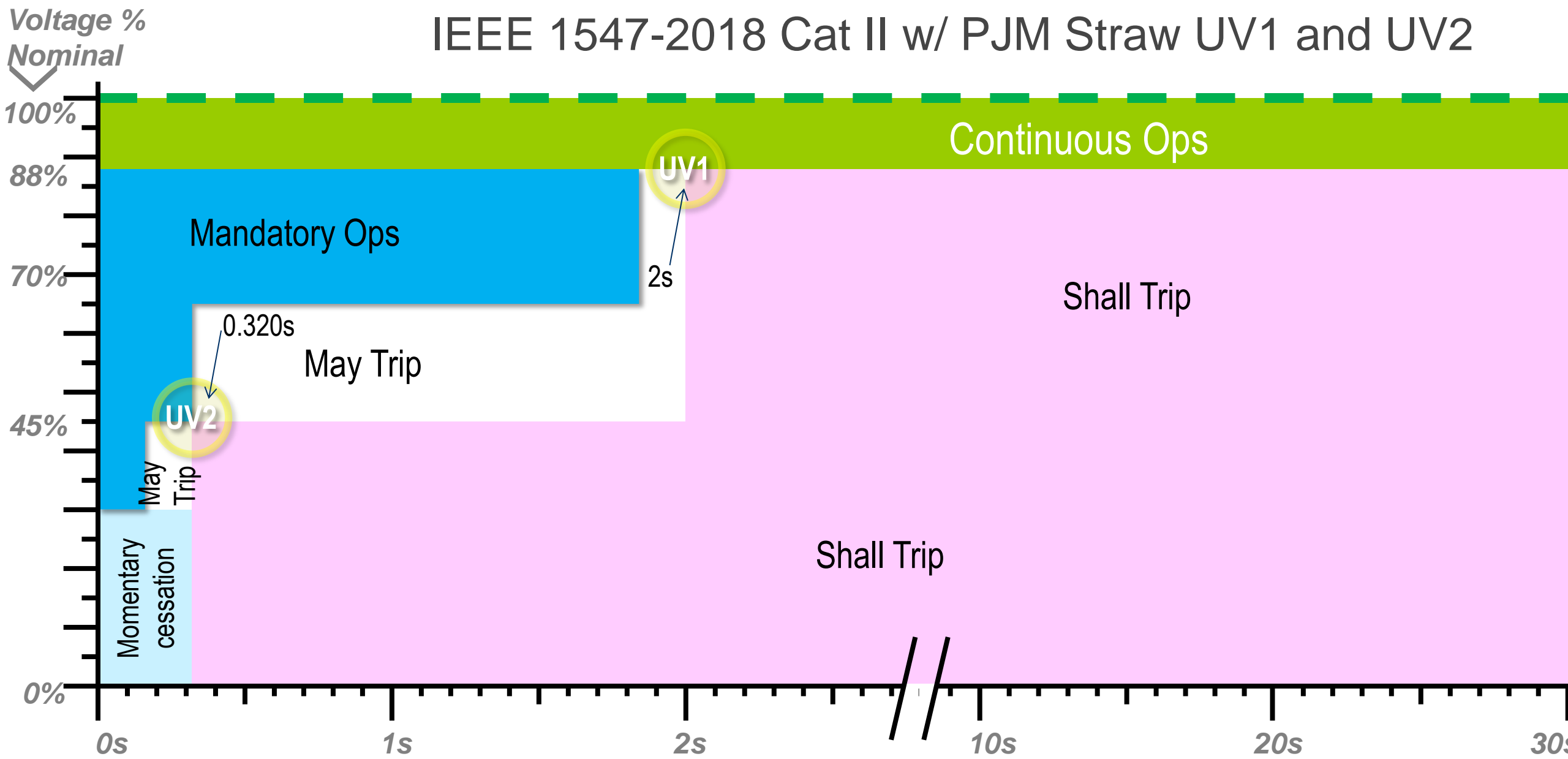
<https://www.comed.com/SiteCollectionDocuments/MyAccount/MyBillUsage/CurrentRates/Ratebook.pdf> page 659 of PDF

# IEEE 1547-2018 Cat III w/ PJM Straw UV1 and UV2



<https://www.comed.com/SiteCollectionDocuments/MyAccount/MyBillUsage/CurrentRates/Ratebook.pdf> page 659 of PDF

# IEEE 1547-2018 Cat II w/ PJM Straw UV1 and UV2





- June 2019: Draft and submit PAR to SCC21
- June 28, 2019: Approval of PAR at SCC21 meeting<sup>1</sup>
- July 26, 2019: Submission to NesCom
- July – September: informal drafting of amendment through IEEE P1547.2
- September 5, 2019: Approval by NesCom
- September 6: Formation of WG, open, starting with former P1547 and current .2 WGs
- September 6-21, 2019: Formation of ballot group / ballot invitation and MEC
- September 12, 2019: WG approval of Initial Ballot Draft by Conference Call (need 2/3 approval)
- September 27, 2019: Approval of Entering Initial Ballot at SCC21 meeting<sup>1</sup>
- September 28 – October 28, 2019: Initial Ballot
- September 28 – November 5, 2019: Ballot resolution (CRT within WG)
- November 5, 2019 – November 15, 2019: Recirculation (as needed)
- November 22, 2019: Approval by SCC21 Officers<sup>1</sup>
- SLACK
- January 24, 2020: Submission to RevCom
- **March 6, 2020:** Approval by RevCom and SASB
- **May 2020:** Publication of the Amendment

➤ *Will this be "in time" for UL certification?*  
**Yes, see next slide...**

<sup>1</sup> electronic vote opens one week before the meeting

Dates	Activities	Status
April 2018	<b>Milestone:</b> IEEE 1547-2018 published: New DER grid interconnection requirements established. In parallel: IEEE 1547.1 update in progress. (New test procedures to verify conformance to 1547-2018)	Complete
February 26-27, 2019	IEEE P1547.1 WG meeting – Draft 9.3 approved by Working Group	Complete
March 2019	Final pre-ballot edits to P1547.1	Complete
April 2019	<b>Milestone:</b> Final WG vote to send P1547.1 Draft 9.4 to IEEE-SA	Complete
April 2019	P1547.1 D9.4 sent to IEEE-SA for ballot invitation and MFC review	Complete
Q2-Q3 2019	IEEE-SA balloting and ballot resolution of P1547.1 (iterative)	In progress
Q3 2019	UL 1741 begin revision draft to incorporate new 1547.1 and 1547	
Q3/Q4 2019	<b>Milestone:</b> IEEE-SA ballot approval of P1547.1	
Q3/Q4 2019	IEEE RevCom review of P1547.1 In parallel: Finalize UL 1741 ballot document to incorporate new 1547.1.	
Q4 2019 / Q1 2020	<b>Milestone:</b> 1547.1 finalization and publication.	
Q1 2020	UL Standards Technical Panel review and ballot updated UL 1741	
Q2 2020	<b>Milestone:</b> UL 1741 update published	
<b>Q1/Q2 2020</b>	<b>Approval and Publication of Amendment to IEEE Std 1547-2018</b>	
Q3 2020 – Q4 2021	Inverter manufacturers update and recertify products to UL 1741	
Q4 2020 – Q4 2021	UL 1741 / 1547-2018 compliant inverters expected to be available on market	

- Option i – Remove any reference to abnormal performance category number in PJM recommendation.
- Option ii – Recommend Category III contingent on allowability of recommended minimum trip times within the 1547 standard, but fall back to Category II if not allowed.
- Note Design Component 4 (“Additional Requirements”), which aims to remove ambiguity in Category II, would be moot if for Category III outcome, but still applicable for Category II outcome.
  - Current PJM proposed option for Design Component 4 says:

*“Within Cat II "Permissive Operation" regime, Mandatory Operation mode required for  $V > 0.50$  p.u., and Momentary Cessation mode required for  $V < 0.50$  p.u.”*