ISSUE CREATION

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<u>Additional Issues Relating to the Implementation of Dynamic Line Ratings</u> was created as a next phase to <u>Interim</u> <u>Measures to Facilitate the Integration of Dynamic Ratings into PJM Operations</u>. The <u>Problem Statement</u> and education-focused <u>Issue Charge</u> was brought forward by PJM at the request of stakeholders and approved at the April 14, 2021 Operating Committee (OC). This issue was assigned to the new Dynamic Line Ratings Task Force (DLRTF) reporting to OC. All posted materials are on the <u>DLRTF</u> page.

ISSUE SUMMARY

The purpose of this issue and work effort was to explore additional considerations related to DLR implementation, including notice of intent to implement DLR, impacts to ARR/FTR markets, and impacts to the Seasonal Ratings utilized within PJM Planning processes.

The expected deliverable was education.

Out of scope were any modifications to the Operating Agreement, Tariff or Manuals that would infringe upon the terms of the Consolidated Transmission Owners Agreement, including requiring Transmission Owners to install and/or implement DLR, modifying the Transmission Owners' authority to determine transmission line rating methodologies, and calculate transmission line ratings. A furtherance of compliance efforts with Order No. 881 was also out of scope.

TASK FORCE KEY WORK ACTIVITIES

	9/8/2022 OC	9/30/2022	11/11/2022	12/12/2022	1/12/2023 OC	2/9/2023 OC
Review Work Plan		Х	Х	Х		
Education		х	х	х		
 Additional considerations regarding notice of an intent to implement DLR. 		Х	х			
 b) Impact of DLR implementation to ARR/FTR markets. 		х	х			
 DLR impacts to the Seasonal Ratings utilized within PJM Planning processes. 		х	х			
 DLR implementation perspectives from stakeholders and DLR vendors. 				х		
Education Survey Open	Х					
Review Education Tracker			Х	Х		
Updates to Parent Committee	Х				Sunset First Read	Sunset Endorsement

Meeting Summaries:

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- September 30, 2022: PJM presented education on dynamic line ratings in PJM to date and education on the three key topics noted in the Issue Charge: (1) Considerations regarding notice of an intent to implement DLR, (2) Impacts of DLR implementation to ARR/FTR markets, and (3) impact on Seasonal Ratings utilized within PJM Planning processes. Stakeholders also reviewed draft questions for an education survey, opened to the DLRTF and OC email distribution lists after the September meeting.
- November 11, 2022: The education survey results were discussed while reviewing the <u>Education Tracker</u>, which includes 24 consolidated requests, FAQs, responses, and related links. PJM SMEs discussed the detailed responses to the survey feedback and provided additional clarifications. The Education Tracker was posted on the DLRTF main page after the November meeting.
- December 12, 2022: Transmission Owners and DLR technology vendors shared experiences and best practices for implementing dynamic line ratings. Next steps for the task force was also discussed, including options for sunset and hiatus given the Task Force had covered education on all topics in the Issue Charge, and no new education requests were received.

RECOMMENDED PROPOSAL / ALTERNATE 1 / ALTERNATE 2

Not Applicable

STANDING COMMITTEE RESULTS

The DLRTF completed all education items in the issue charge, plus education on additional topics brought forward through stakeholder feedback and the education survey (see <u>Education Tracker</u>). PJM remains open to feedback from stakeholders on activities for the task force, but no new requests have been brought forward. An update on DLRTF activities was provided at the January 12, 2023 Operating Committee. During that time, stakeholders provided feedback on options for a path forward, including:

- 1. **Hiatus**: Pause task force and resume meetings when needed. For example, when more data on existing projects becomes available, needs for additional changes (if any) are identified, FERC issues additional rulemaking on DLR. Addressing needs for additional changes via CBIR would require updates to Issue Charge.
- 2. **Sunset**: Close task force, and bring new PS/IC as need arises.

Under all options, information on any new DLR installation must be communicated to Operating Committee per the notice requirement in M03 - Section 2.1.1.2.

Stakeholders voiced support for sunset of the DLRTF, and this option was designated as a First Read. Pending endorsement at the February 9, 2023 Operating Committee, the DLRTF will be sunset.

APPENDIX I: SUPPLEMENTAL DOCUMENTS

Committee Page

Issue Tracking

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Education Tracker

APPENDIX II: PJM PARTICIPATION

Facilitator : Natalie Tacka Furtaw

Secretary : Ashwini Bhat

Advocates : David Hislop, Sami Abdulsalam, Eric Hsia, PJM Stakeholder Affairs Representative

Subject Matter Experts : Raymond J. III Fernandez, Nicolae Dumitriu, Christopher R. Callaghan, Michael Herman, Vy Le, Bilge Derin, Ryan A. Nice, James Waweru, Darlene Phillips, J. Rami G Dirani, Janell L. Fabiano, Kevin Bazar.

PJM Legal : Mark Stanisz

APPENDIX III: STAKEHOLDER PARTICIPATION

Name	Company	Sector	
Name		3600	
Tina Mohler	PJM Interconnection LLc	Not Applicable	
Hong Chen	PJM Interconnection LLc	Not Applicable	
Jim Benchek	First energy Corporation	Transmission Owner	
Mark Stanisz	PJM Interconnection LLc	Not Applicable	
Michael Herman	PJM Interconnection LLc	Not Applicable	
Adrien Ford	Old Dominion Electric Cooperative	Electric Distributor	
Raymond Fernandez	PJM Interconnection LLc	Not Applicable	
john dadourian	Monitoring Analytics, LLC	Not Applicable	
Mike Bryson	PJM Interconnection LLc	Not Applicable	
Takis Laios	Appalachian Power Company	Transmission Owner	
Bill Crossland	Reliability First Corporation	Not Applicable	
Connie Schroeder	Dominion Energy	Transmission Owner	
Elizabeth Barnes	Not applicable	Not Applicable	
Jill Gates	PJM Interconnection LLc	Not Applicable	
Rafael Wilches	Public Service Electric & Gas Company	Transmission Owner	
Hilary Pearson	Linevision Inc	Not Applicable	
Christian McDewell	Not applicable	Not Applicable	
Steven Nadel	PPL Electric	Transmission Owner	
Becky Webb	Exelon Corporation	Transmission Owner	
Christopher Pilong	PJM Interconnection LLc	Not Applicable	

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Zachary Callen	Illinios Commerce Commission	Not Applicable	
Ben Sloan	Organization of PJM States, Inc. (OPSI)	Not Applicable	
Anu Janapareddy	National Grid Renewables	Not Applicable	
Natalie Tacka Furtaw	PJM Interconnection LLc	Not Applicable	
Jonathan Sasser	Customized Energy Solutions, Ltd	Not Applicable	
Dmitriy Misyura	Public Service Electric & Gas Company	Transmission Owner	
John Brodbeck	EDP Renewables North America LLC	Generation Owner	
Jay Rasmussen	Duke Energy Business Services LLC	Transmission Owner	
jonas thaliath	Public Service Electric & Gas Company	Transmission Owner	
Mark Price	DC Energy Mid-Atlantic, LLC	Other Supplier	
Joey Alexander	Ampacimon	Not Applicable	
Horst Lehmann	PPL Electric	Transmission Owner	
Solon James	DC Energy, LLC	Other Supplier	
Eric Rosenberger	PPL Electric	Transmission Owner	
Maura McClelland	Public Utilities Commission of Ohio	Not Applicable	
Rory Sweeney	Not applicable	Not Applicable	
Mahila Christopher	Public Utilities Commission of Ohio	Not Applicable	
Bill Elko	PPL Electric	Transmission Owner	
Cynthia Bothwell	Department of Energy, DOE	Not Applicable	
Kerry Neubrander	DC Energy Mid-Atlantic, LLC	Other Supplier	
Solomon, Greg	NextEra Energy Marketing, LLC	Other Supplier	
Michael Coccco	Old Dominion Electric Cooperative	Electric Distributor	
Janessa Kent	Duquesne Light Company	Transmission Owner	
Thomas Hoatson	LS Power	Transmission Owner	
Gerit Hull	American Municipal Power, Inc.	Electric Distributor	
Christin Domian	Duquesne Light Company	Transmission Owner	
Roseanne Circelli	Public Service Electric & Gas Company	Transmission Owner	
Jason Hitt	Duquesne Light Company	Transmission Owner	
Ben Rhyne	Dominion Energy	Transmission Owner	
Phil D'Antonio	PJM Interconnection LLc	Not Applicable	
Tom Hyzinski	GT Power Group, LLC	Not Applicable	
Eric Hsia	PJM Interconnection LLc	Not Applicable	
Michelle Antantis	Duquesne Light Company	Transmission Owner	
Janell Fabiano	PJM Interconnection LLc	Not Applicable	
Brian Hallett	ReliabilityFirst Corporation	Not Applicable	
Elizabeth Cook	Duquesne Light Company	Transmission Owner	
Laura Yovanovich	PPL Electric	Transmission Owner	

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Richard Steinbacher Dominion Energy Transmission Owner Jeff Whitehead GT Power Group, LLC Not Applicable Sharon Midgley Exelon Carporation Transmission Owner Jerremy Abramowitz Monitoring Analytics, LLC Not Applicable Joe Pilch Duquesne Light Company Transmission Owner John Eason Not applicable Not Applicable Bruce Bleiweis DC Energy, LLC Other Supplier Dane Janicki Boston Energy Trading and Marketing LLC Other Supplier Shaun Murphy Urban Grid Not Applicable Janatham Marmilio Linewison Inc Not Applicable Kevin Bazar PJM Interconnection LLC Other Supplier Jandirfer Hohenshilt Talein Energy Marketing, LLC Other Supplier Jandirfer Hohenshilt Talein Energy Marketing, LLC Other Supplier David Histop PJM Interconnection LLC Not Applicable Kerneth Foladare Tangibl Inc Not Applicable Ray Femandez PJM Interconnection LLC Not Applicable David Mabry MoxPergroup Applicable	Dave Hicks	Perast Fund LP	Other Supplier	
Sharon MidgleyExelon CorporationTransmission OwnerJaremy AbramowitzMonitoring Analytics, LLCNot ApplicableJobe PitchDuquesne Light CompanyTransmission OwnerJohn EasonNot applicableNot ApplicableClayLinevision IncNot ApplicableBruce BleiweisDC Energy, LLCOther SupplierDane JanickiBoston Energy Trading and Marketing LLCOther SupplierDane JanickiBoston Energy Trading and Marketing LLCOther SupplierShaun MurphyUrban GridNot ApplicableJonathan MarmilloLinevision IncNot ApplicableJonatha MarmilloLinevision IncNot ApplicableJonatha MarmilloLinevision IncNot ApplicableJonatha MarmilloLinevision IncNot ApplicableJonatha MarmilloLinevision IncNot ApplicablePeter HepplewhiteWrigley Capital LLCOther SupplierDaridt HisopPJM Interconnection LLcNot ApplicableRay FernandezPJM Interconnection LLCNot ApplicableRay FernandezPJM Interconnection LLCOther SupplierMark HurwichElliott Bay Energy Trading, LLCOther SupplierDavid MabryMcNees, Wallace & Nurck, LLCNot ApplicableMark HurwichDiek Energy Ohio, Inc.Transmission OwnerPaul McGiynnPJM Interconnection LLcNot ApplicableMeagan KuchanAES CorporationTransmission OwnerPaul McGiynnDuke Energy Ohio, Inc.Transmission OwnerPau	Richard Steinbacher	Dominion Energy	Transmission Owner	
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Steinkuhl, SteveDuke Energy Business Services LLCTransmission OwnerDanielle DaughertyReliabilityFirst CorporationNot ApplicableChristopher CallaghanPJM Interconnection LLcNot ApplicableArt IlerIndiana Office of Utility Consumer CounselEnd User CustomerGary MasonFirst energy CorporationTransmission OwnerRobert CopeDominion EnergyTransmission OwnerJason CoxEDF Energy Services, LLCOther Supplier	Paul McGlynn	PJM Interconnection LLc	Not Applicable	
Danielle DaughertyReliabilityFirst CorporationNot ApplicableChristopher CallaghanPJM Interconnection LLcNot ApplicableArt llerIndiana Office of Utility Consumer CounselEnd User CustomerGary MasonFirst energy CorporationTransmission OwnerRobert CopeDominion EnergyTransmission OwnerJason CoxEDF Energy Services, LLCOther Supplier	Baker, Jeff	Duke Energy Ohio, Inc.	Transmission Owner	
Christopher CallaghanPJM Interconnection LLcNot ApplicableArt IlerIndiana Office of Utility Consumer CounselEnd User CustomerGary MasonFirst energy CorporationTransmission OwnerRobert CopeDominion EnergyTransmission OwnerJason CoxEDF Energy Services, LLCOther Supplier	Steinkuhl, Steve	Duke Energy Business Services LLC	Transmission Owner	
Art llerIndiana Office of Utility Consumer CounselEnd User CustomerGary MasonFirst energy CorporationTransmission OwnerRobert CopeDominion EnergyTransmission OwnerJason CoxEDF Energy Services, LLCOther Supplier	Danielle Daugherty	ReliabilityFirst Corporation	Not Applicable	
Gary Mason First energy Corporation Transmission Owner Robert Cope Dominion Energy Transmission Owner Jason Cox EDF Energy Services, LLC Other Supplier	Christopher Callaghan	PJM Interconnection LLc	Not Applicable	
Robert Cope Dominion Energy Transmission Owner Jason Cox EDF Energy Services, LLC Other Supplier	Art ller	Indiana Office of Utility Consumer Counsel	End User Customer	
Jason Cox EDF Energy Services, LLC Other Supplier	Gary Mason	First energy Corporation	Transmission Owner	
	Robert Cope	Dominion Energy	Transmission Owner	
Ashwini Bhat PJM Interconnection LLc Not Applicable	Jason Cox	EDF Energy Services, LLC	Other Supplier	
	Ashwini Bhat	PJM Interconnection LLc	Not Applicable	