

Comment Report

Project Name: Cost Effectiveness Pilot 2016
Comment Period Start Date: 4/27/2016
Comment Period End Date: 5/26/2016
Associated Ballots:

There were 47 sets of responses, including comments from approximately 47 different people from approximately 46 companies representing 9 of the Industry Segments as shown in the table on the following pages.

Questions

1. Reliability Standard TPL-001-4 requires an entity to consider planned maintenance outages greater than six months in duration in its studies. What, if any, risk is there to the reliable operation of the Bulk Power System (BPS), as defined in Section 215 of the Federal Power Act (i.e., “operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance . . . or unanticipated failure of system elements”) if planned maintenance outages of less than six months in duration are not considered in studies during one or both seasonal off-peak periods?

Please explain your response:

1a. If there are risks to the reliable operation of the BPS, are the likelihood of the occurrence of these risks low, medium or high?

Please explain your response:

1b. What costs should be considered when evaluating these risks or in adding planned maintenance outages less than six months to TPL-001-4?

Please explain your response:

1c. If you identified one or more risks and identified a likelihood of “medium” or “high”, is there a more cost effective manner to reduce them rather than revising TPL-001-4 or is there an preferred approach to revising TPL-001-4 that takes into consideration cost effectiveness?

Please explain your response including descriptions of potential cost effective solutions and the associated benefits to reliability:

2. What, if any, risk to the reliable operation of the BPS, as defined under Section 215 (see question 1 above) is there if an entity does not perform stability analyses for the P0, P1 and P2 categories in TPL-001-4 that consider the possible unavailability of long lead-time equipment?

Please explain your response:

2a. If there are risks to the reliable operation of the BPS, are the likelihood of the occurrence of these risks low, medium or high?

Please explain your response:

2b. What costs should be considered when evaluating these risks?

Please explain your response:

2c. If you identified one or more risks and identified a likelihood of “medium” or “high” is there a cost effective manner to reduce them rather than revising TPL-001-4 or is there an preferred approach to revising TPL-001-4 that takes into consideration cost effectiveness?

Please explain your response including descriptions of potential cost effective solutions and the associated benefits to reliability:

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
ACES Power Marketing	Brian Van Gheem	6	NA - Not Applicable	ACES Standards Collaborators	Bob Solomon	Hoosier Energy Rural Electric Cooperative, Inc.	1	RF
					Ginger Mercier	Prairie Power, Inc.	1,3	SERC
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Shari Heino	Brazos Electric Power Cooperative, Inc.	1,5	Texas RE
					Bill Hutchison	Southern Illinois Power Cooperative	1	SERC
					Mark Ringhausen	Old Dominion Electric Cooperative	3,4	SERC
					Chip Koloini	Golden Spread Electric Cooperative, Inc.	5	SPP RE
					Ellen Watkins	Sunflower Electric Power Corporation	1	SPP RE
Florida Municipal Power Agency	Chris Gowder	3,4,5,6	FRCC	FMPA	Tim Beyrle	City of New Smyrna Beach	4	FRCC
					Jim Howard	Lakeland Electric	5	FRCC
					Lynne Mila	City of Clewiston	4	FRCC
					Javier Cisneros	Fort Pierce Utility Authority	3	FRCC
					Randy Hahn	Ocala Utility Services	3	FRCC
					Don Cuevas	Beaches Energy Services	1	FRCC

					Stan Rzad	Keys Energy Services	4	FRCC
					Matt Culverhouse	City of Bartow	3	FRCC
					Tom Reedy	Florida Municipal Power Pool	6	FRCC
					Steve Lancaster	Beaches Energy Services	3	FRCC
					Mike Blough	Kissimmee Utility Authority	5	FRCC
					Mark Brown	City of Winter Park	4	FRCC
					Chris Adkins	City of Leesburg	3	FRCC
					Ginny Beigel	City of Vero Beach	9	FRCC
Duke Energy	Colby Bellville	1,3,5,6	FRCC,RF,SERC	Duke Energy	Doug Hils	Duke Energy	1	RF
					Lee Schuster	Duke Energy	3	FRCC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
SERC Reliability Corporation	David Greene	10	SERC	SERC PSS	Shih-Min Hsu	Southern Company Services – Transmission	1	SERC
					John Sullivan	Ameren	1	SERC
					Phil Kleckley	SCE&G	1	SERC
					Jeffrey L. Powell	TVA	1	SERC
					David Greene	SERC	10	SERC
Tennessee Valley Authority	Dennis Chastain	1,3,5,6	SERC	Tennessee Valley Authority	DeWayne Scott	Tennessee Valley Authority	1	SERC
					Ian Grant	Tennessee Valley Authority	3	SERC
					Brandy Spraker	Tennessee Valley Authority	5	SERC
					Marjorie Parsons	Tennessee Valley Authority	6	SERC

Electric Reliability Council of Texas, Inc.	Elizabeth Axson	2		IRC Standards Review Committee	Elizabeth Axson	ERCOT	2	Texas RE
					Charles Yeung	SPP	2	SPP RE
					Ben Li	IESO	2	NPCC
					Ali Miremadi	CAISO	2	WECC
					Mark Holman	PJM	2	RF
					Matt Goldberg	ISO-NE	2	NPCC
					Greg Campoli	NYISO	2	NPCC
Seattle City Light	Ginette Lacasse	1,3,4,5,6	WECC	Seattle City Light Ballot Body	Pawel Krupa	Seattle City Light	1	WECC
					Dana Wheelock	Seattle City Light	3	WECC
					Hao Li	Seattle City Light	4	WECC
					Bud (Charles) Freeman	Seattle City Light	6	WECC
					Mike haynes	Seattle City Light	5	WECC
					Michael Watkins	Seattle City Light	1,3,4	WECC
					Faz Kasraie	Seattle City Light	5	WECC
					John Clark	Seattle City Light	6	WECC
Con Ed - Consolidated Edison Co. of New York	Kelly Silver	1,3,5,6	NPCC	Con Edison	Kelly Dash	Con Edison	1,3,5,6	NPCC
					Edward Bedder	Orange and Rockland Utilities	NA - Not Applicable	NPCC
Southern Company - Southern Company Services, Inc.	Marsha Morgan	1,3,5,6	SERC	Southern Company	Robert Schaffeld	Southern Company Services, Inc	1	SERC
					John Ciza	Southern Company Generation and Energy Marketing	6	SERC
					R Scott Moore	Alabama Power Company	3	SERC
					William Shultz	Southern Company Generation	5	SERC
PPL -	Robert Tallman	3,5,6	SERC	LG&E and KU	Bob Tallman	LG&E and KU	3,5,6	SERC

Louisville Gas and Electric Co.				Energy		Energy		
					Charlie Freibert	LG&E and KU Energy	3	SERC
					Dan Wilson	LG&E and KU Energy	5	SERC
					Linn Oelker	LG&E and KU Energy	6	SERC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7	NPCC	RSC No Dominion, Con-Ed and NextEra	Paul Malozewski	Hydro One.	1	NPCC
					Guy Zito	Northeast Power Coordinating Council	NA - Not Applicable	NPCC
					Rob Vance	New Brunswick Power	1	NPCC
					Mark J. Kenny	Eversource Energy	1	NPCC
					Gregory A. Campoli	NY-ISO	2	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Wayne Sipperly	New York Power Authority	4	NPCC
					David Ramkalawan	Ontario Power Generation	4	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Brian Robinson	Utility Services	5	NPCC
					Bruce Metruck	New York Power Authority	6	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					Edward Bedder	Orange & Rockland Utilities	1	NPCC
					David Burke	UI	3	NPCC
					Michele Tondalo	UI	1	NPCC
Kathleen	ISO-NE	2	NPCC					

					Goodman			
					Sylvain Clermont	Hydro Quebec	1	NPCC
					Si Truc Phan	Hydro Quebec	2	NPCC
					Helen Lainis	IESO	2	NPCC
					Brian Shanahan	National Grid	1	NPCC
					Michael Jones	National Grid	3	NPCC
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	SPP RE	SPP Standards Review Group	Shannon Mickens	Southwest Power Pool Inc.	2	SPP RE
					Jason Smith	Southwest Power Pool Inc	2	SPP RE
					James Nail	Independence Power and Light	3,5	SPP RE
					Mike Kidwell	Empire District Electric Company	1,3,5	SPP RE
					Ellen Watkins	Sunflower Electric Power Corporation	1	SPP RE
					kevin Giles	Westar Energy	1,3,5,6	SPP RE
					Carl Stelly	Southwest Power Pool Inc	2	SPP RE
					John Allen	City Utilities of Springfield	1,4	SPP RE

1. Reliability Standard TPL-001-4 requires an entity to consider planned maintenance outages greater than six months in duration in its studies. What, if any, risk is there to the reliable operation of the Bulk Power System (BPS), as defined in Section 215 of the Federal Power Act (i.e., “operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance . . . or unanticipated failure of system elements”) if planned maintenance outages of less than six months in duration are not considered in studies during one or both seasonal off-peak periods?

Please explain your response:

Bob Case - 1,3,5,6 - WECC

Answer

Document Name

Comment

Black Hills believes it is pretty thorough in its outage coordination studies, so TPL-001-4 does not need to consider outages less than six months. Also, for compliance purposes, we need to identify a "planning horizon" and an "operating horizon." It is not reasonable to keep shortening the planning horizon because it forces transmission planners to lose focus on the longer term horizon.

The planning horizon is year 1 through year 10. Year 1 begins 12 months out from today, generally. We do not study anything in Year 0. To date, we have not had any planned outages of any duration scheduled more than 12 months out, which is confirmed by our outage coordinator and included in the TPL RSAW as evidence. We believe that any outages that do meet this criteria would be addressed in a project specific study as needed, rather than the catch-all TPL study. If it was included in the TPL study, it would be to satisfy a compliance requirement rather than for internal reliability reasons. There is enough uncertainty outside the 12 month operating horizon that any planning horizon analysis of planned outages would be of limited value. Black Hills believes that value would predominately lie in the outage coordination arena.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

There is no risk to the reliable operation of the BPS if planned outages of less than six months are not considered during TPL-001-4 studies. Current practices require that operational studies be performed to ensure system reliability when taking maintenance outages. These studies include single and credible multiple contingencies, and identifying operational solutions for any violations seen before taking the outage. These operational studies are done with ample time to respond to issues identified.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

The six month time frame for including planned outages was intentionally chosen by the TPL Standard Drafting Team to be the correct time frame to make sure that outages which can cover critical peak seasons would be included in the planning analysis. Outages shorter than this are not likely to occur over critical peak seasons. Furthermore, within Southern Company, all planned outages are studied by the Operations Planning Department. They will take the necessary steps to operate around an outage. There is no risk to the reliability of the grid if planned outages are not studied (by the Transmission Planner) in planning assessments because the outages are studied by Operations Planning.

Likes 0

Dislikes 0

Response

Thomas Foltz - 3,5

Answer

Document Name

Comment

AEP considers the risk to be minimal. At present, our Operations team (in conjunction with applicable RCs) addresses these short duration issues in both real time and seasonal analysis. It would be impractical to address short duration maintenance outages as part of long term planning and modeling. As a result, we do not believe there is a risk-based need to adjust the threshold to less than six months in system models.

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer

Document Name

Comment

There is low risk to the reliable operation of the BPS if planned maintenance outages of less than six months in duration are not considered in planning

studies. Short-term maintenance outages are usually done during off-peak periods and are already evaluated for reliable operation of the BPS through operational studies. Maintenance outages are performed in the operations time frame and are allowed, or not based on operating conditions expected at the time of the outage. Based on operational studies, maintenance outages may be rescheduled to a timeframe that has less impact on BPS performance. BPA's position is this change should not be added to the TPL-001-4 study requirements.

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

If planned maintenance outages of less than six months in duration are not considered in studies, the biggest risk would be delayed projects and maintenance due to outage request rejections in the operations horizon. Modeling these outages in planning cases would allow the Transmission Planner (TP) to identify issues that may cause an outage request to be rejected by the RC in order to resolve any scheduling of potential reliability conflicts in the operations horizon.

An additional risk is present if a shorter term outage is not studied that has significant impact on the grid. Without proper study efforts the impact will be realized in real-time or the project will be delayed as mentioned above (which causes changes in other planned outages).

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

See response to 1a.

Likes 0

Dislikes 0

Response

Nick Vtyurin - 1,3,5,6 - MRO

Answer

Document Name

Comment

The only risk would be if there were multiple concurrent outages that had not been studied before. However, short term outage planning is studied in the Operational Horizon. For example, TOP-004-2 ensures that system instability does not occur as a result of the most severe single contingency. For multiple planned outages, special studies are conducted to determine revised System Operating Limits, which are posted on the OASIS via a Temporary Operating Instruction. TPL-001-4 does not need to be modified to cover planned maintenance outages less than six months in duration.

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO

Answer

Document Name

Comment

Removing the six-month TPL-001-4 planning assessment threshold is not cost effective and the FERC directive in paragraph 40 of Order No. 786 <http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/E-2 Transmission Planning Rel. Strd.pdf> relating to TPL due to unintended impacts of removing the six-month threshold. -0

The MRO NSRF suggests an equally effective alternative be proposed to address FERC's concerns about off-peak conditions. The MRO NSRF suggests that existing wording in the NERC standard be identified or clarified to include outages of more than six-months should include a sensitivity analysis if the outage occurs in the spring and / or fall months.

Planned maintenance outages of less than six months in duration aren't necessary for long-term annual planning assessments such as TPL-001-4. The annual TPL-001-4 assessments which look in the near-term (years 1 – 5) and long-term (years 6 – 10) planning horizons are reasonable projections of system conditions and aren't meant to represent the specific operational type concerns for outages shorter than six months. Risk is based on probability, duration, and severity. The probability and duration of outages less than six months reduces the chance of an event towards zero as the duration gets smaller. Therefore, the industry reviewed and approved six month duration threshold is appropriate for a planning assessment.

By removing the six month threshold, FERC opens the door to annual TPL-001-4 planning assessments being performed for one day outages such as those required for mandated PRC-005-2 relay and maintenance testing. Short term outages are considered in operational planning assessments such as seasonal, next-day, and current-day assessments.

Annual Planning Assessments are not operational assessments. In short, annual planning assessments become meaningless as durations become shorter than six months. An annual TPL-001-4 planning assessment represents a reasonable general snapshot of the system assuming all equipment is available and in-service except for the specific contingency performed. Daily operational conditions almost never have the system entirely intact and available due to necessary system maintenance and testing.

Likes 0

Dislikes 0

Response

Joe Tarantino - 1,3,4,5,6 - WECC

Answer

Document Name

Comment

Sacramento Municipal Utility District (SMUD) views the condition of not considering maintenance outages less than 6-months duration does not pose any risk to the bulk power system. Our planned maintenance outages are only scheduled during off-peak conditions; conditions of which transmission planning evaluations consistently have demonstrated no negative impact to the immediate and neighboring bulk power system.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer

Document Name

Comment

All planned outages have been studied by the District's system engineer prior to the submittal to Peak RC using the Coordinated Outage System. The outages will then be included in the next day studies. If violations are found in the studies, a mitigation plan will be included in the report before the outage was taken to ensure there are no reliability issues during the outage.

Likes 0

Dislikes 0

Response

Kelly Silver - 1,3,5,6, Group Name Con Edison

Answer

Document Name

Comment

The inclusion of planned outages of less than six months in duration in planning studies is not appropriate. TPL-001-4 already requires Transmission Planners to consider planned maintenance outages greater than six months in duration. These kind of short-term planning outages are more

appropriate in the Operations timeframe—that's where the risk may be. There is no risk in not including these short-term planned outages in the Planning timeframe.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer

Document Name

Comment

With the various categories of contingencies which need to be considered already as part of system assessment work related to compliance with Reliability Standard TPL-001-4, both single and multiple element contingencies, to further give consideration to outages of less than 6 months duration would appear to be needlessly redundant. The six month time frame for including planned outages was intentionally chosen by the TPL Standard Drafting Team to be the correct time frame to make sure that outages which can cover critical peak seasons would be included in the planning analysis. Outages shorter than this are not likely to occur over critical peak seasons. Furthermore, all planned outages are studied by the Operations Planning Department. They will take the necessary steps to operate around an outage. There is no risk to the reliability of the grid if planned outages are not studied (by the Transmission Planner) in planning assessments because the outages are studied by Operations Planning.

Some additional points to consider:

- The purpose of the standard TPL-001-4 is to “Establish Transmission system planning performance requirements within the planning horizon to develop a Bulk electric System (BES) that will operate reliably over a broad spectrum of System conditions and following a wide range of probable Contingencies”. Outages that would be scheduled in the planning horizon would be subject to the performance requirements of this standard. Outages that would be scheduled in the operating horizon should be subject to the performance requirements of other standards.
- Planned maintenance and construction outages typically last from a few days to a few weeks and occur during off-peak time periods with load levels ranging from light load to shoulder peak.
- During the construction and maintenance seasons multiple facilities are out of service at the same time and are studied in the operating horizon.
- System adjustments, including transmission switching and generation redispatch (develop short term operating guides), are made as needed to accommodate planned maintenance and construction outages.

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

No risk, short duration outages are effectively studied and addressed in the operating horizon. Year 1 (NERC definition) of the planning cases is anywhere from 12 - 18 months from the time the outage will actually occur. Mitigating for a short-duration outage that is beyond one year from occurrence is an ineffective use of time as system conditions will not be as well-known as they are within the one year or less timeframe that operations studies are performed

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer

Document Name

Comment

Planned maintenance of less than six months are captured during operational planning study work and as such result in minimal risk if not considered during the TPL-001-4 assessment work.

Planned maintenance outages greater than six months generally would involve large projects and/or significant changes to the system for which a planning assessment (TPL work) is justified. Shorter window planned maintenance outages have in general less impact to the system and can be managed by the operational planning process as they move into the operating horizon.

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

Document Name

Comment

The only minor risk lies in relying on operations studies to cover any planned maintenance outages of less than six months in duration. This results in less time to develop mitigation plans, if required, for the planned outages.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer	
Document Name	
Comment	
<p>Risk to the reliable operation of the BPS if planned maintenance outages less than six months in duration are not considered is minimal, as these short term outages are already evaluated through operational assessments near-term operations horizon.</p> <p>Planned maintenance outages of less than six months in duration aren't necessary for long-term annual planning assessments such as TPL-001-4. The annual TPL-001-4 assessments which look in the near-term (years 1 – 5) and long-term (years 6 – 10) planning horizons are reasonable projections of system conditions and aren't meant to represent the specific operational type concerns for outages shorter than six months. Risk is based on probability, duration, and severity. The probability and duration of outages less than six months reduces the chance of an event towards zero as the duration gets smaller. Therefore, the industry reviewed and approved six month duration threshold is appropriate for a planning assessment.</p> <p>By removing the six month threshold, FERC opens the door to annual TPL-001-4 planning assessments being performed for one day outages such as those required for mandated PRC-005-2 relay and maintenance testing. Short term outages are considered in operational planning assessments such as seasonal, next-day, and current-day assessments.</p> <p>Annual Planning Assessments are not operational assessments. In short, annual planning assessments become meaningless as durations become shorter than six months. An annual TPL-001-4 planning assessment represents a reasonable general snapshot of the system assuming all equipment is available and in-service except for the specific contingency performed. Daily operational conditions almost never have the system entirely intact and available due to necessary system maintenance and testing.</p> <p>With respect to the concern for evaluation of planned maintenance outages in the seasonal off-peak periods, inclusion of a requirement to perform an assessment of the off-peak seasonal case for planned maintenance outages with durations greater than six months in duration, that extend into seasonal off-peak periods, may be appropriate for the TPL planning assessment.</p>	
Likes	0
Dislikes	0
Response	
Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	
Document Name	
Comment	
<p>Yes, Duke Energy believes that there are some outages less than six months in duration that would have some potential impact on the BPS. However, the impacts mentioned would be low risk and have a minimal impact on the BPS. The justification for low risk/minimal impact in part is based on the practice of Operational Planners being able to mitigate any potential risk to the system by modifying the scheduling of outages, re-configuring of</p>	

transmission system, and other real-time actions that could be taken to mitigate risk to the BPS.

Likes 0

Dislikes 0

Response

Jason Marshall - NA - Not Applicable - NA - Not Applicable

Answer

Document Name

Comment

The New England States Committee on Electricity (“NESCOE”) appreciates the opportunity to submit comments. NESCOE is New England’s regional state committee. NESCOE understands that ISO New England (“ISO-NE”) will be submitting comments today explaining how the New England region is already well positioned to address reliability risks in connection with planned maintenance outages. This includes a suite of authorities and procedures that are currently in place to govern the scheduling and management of planned (and unplanned) outages. Last year, ISO-NE received and managed over 6,000 planned and unplanned outages within New England and in neighboring areas. *ISO New England Transmission Equipment Outage Coordination in 2015*, May 11, 2016, at 4. NESCOE agrees with ISO-NE that, compared to the current administrative processes in place in New England, imposing a new standard that requires planning analyses for known planned outages is an inefficient approach to addressing the relevant reliability risks in New England.

Likes 0

Dislikes 0

Response

Terry BIlke - 2

Answer

Document Name

Comment

MISO agrees that planned maintenance outages should be considered in planning for the reliable operation of the BPS. If the planning function does not provide for a robust system with sufficient adequacy to allow each facility an opportunity to be removed from service for planned maintenance during periods when maintenance is typically performed (off-peak) and while simultaneously allowing the system to be operated in a manner that is secure for N-1 contingencies during the planned outage, the RC outage coordination process could be backed into a corner where they are unable to confidently approve certain maintenance outage requests. Given that a core purpose of planning is to ensure the system is adequate, reliable and robust under future conditions, the need for performing future maintenance of facilities cannot be ignored. However, including only scheduled outages with a 6 month duration or longer will not meet the objective of ensuring the system is adequate to accommodate future maintenance, as this method will not verify that the system will support maintenance of each facility where that facility is required to be removed from service. Therefore, the standard should be revised to remove the 6 month planned outage requirement and instead reinstate the provisions in the previous TPL standard where off-peak planning cases are analyzed to ensure the system is capable of supporting a planned outage for each element of the system while simultaneously being secure for the next contingency.

Likes 0

Dislikes 0

Response

Bob Thomas - 4

Answer

Document Name

Comment

Illinois Municipal Electric Agency (IMEA) does not have the asset ownership or operational experience to provide a critique of the cost effectiveness pilot questions. IMEA encourages NERC to consider a cost effectiveness pilot relevant to smaller entities. Also, IMEA was surprised NERC's 5/2/16 Cost-Effectiveness WebEx did not address the cost impact and cost effectiveness analysis processes being employed by NERC. IMEA recommends that NERC provide a WebEx addressing the established industry best practices being used by NERC for conducting cost impact and cost effectiveness analyses to support the development and adoption of risk-/results-based reliability standards.

Likes 0

Dislikes 0

Response

David Jendras - 1,3,6

Answer

Document Name

Comment

With the various categories of contingencies which need to be considered already as part of system assessment work related to compliance with Reliability Standard TPL-001-4, both single and multiple element contingencies, to further give consideration to outages of less than 6 months duration would appear to be needlessly redundant.

Some additional points to consider:

- **The purpose of the standard TPL-001-4 is to “Establish Transmission system planning performance requirements within the planning horizon to develop a Bulk electric System (BES) that will operate reliably over a broad spectrum of System conditions and following a wide range of probable Contingencies”. Outages that would be scheduled in the planning horizon would be subject to the performance requirements of this standard. Outages that would be scheduled in the operating horizon should be subject to the performance requirements of other standards.**
- **Planned maintenance and construction outages typically last from a few days to a few weeks and occur during off-peak time periods with load levels ranging from light load to shoulder peak. Although practices on other systems may vary, there are no maintenance outages on the Ameren system that would last up to six months.**
- **During the construction and maintenance seasons multiple facilities are out of service at the same time and are studied in the**

operating horizon.

- **System adjustments, including transmission switching and generation redispatch (develop short term operating guides), are made as needed to accommodate planned maintenance and construction outages.**

Likes 0

Dislikes 0

Response

Oliver Burke - 1,5

Answer

Document Name

Comment

1. While maintenance outages of less than 6 months are not explicitly evaluated in long-term planning studies, they are implicitly reviewed in planning events which simulate the unplanned outages of multiple facilities. Thus entities have the opportunity to identify potential reliability risks observed in various system conditions (peak, off-peak, and sensitivities) as if one facility were out for a planned outage and a second unplanned outage occurred. Additionally, short-term planned outages can be scheduled and thus can be planned to occur during conditions where reliability risk is de minimis. The planning of routine short-term outages is best done in the operating horizon where better estimates of upcoming real-time conditions can be used in the evaluations.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

Document Name

Comment

Removing the six-month TPL-001-4 planning assessment threshold is not cost effective and the FERC directive in paragraph 40 of Order No. 786^[1] relating to TPL ~~on the threshold~~ ~~threshold~~ not be implemented due to unintended

The MRO NSRF suggested an equally effective alternative be proposed to address FERC's concerns about off-peak conditions. The MRO NSRF suggested that existing wording in the NERC standard be identified or clarified to include outages of more than six-months should include a sensitivity analysis if the outage occurs in the spring and / or fall months.

Planned maintenance outages of less than six months in duration aren't necessary for long-term annual planning assessments such as TPL-001-4. The

annual TPL-001-4 assessments which look in the near-term (years 1 – 5) and long-term (years 6 – 10) planning horizons are reasonable projections of system conditions and aren't meant to represent the specific operational type concerns for outages shorter than six months. Risk is based on probability, duration, and severity. The probability and duration of outages less than six months reduces the chance of an event towards zero as the duration gets smaller. Therefore, the industry reviewed and approved six month duration threshold is appropriate for a planning assessment.

By removing the six month threshold, FERC opens the door to annual TPL-001-4 planning assessments being performed for one day outages such as those required for mandated PRC-005-2 relay and maintenance testing. Short term outages are considered in operational planning assessments such as seasonal, next-day, and current-day assessments.

Annual Planning Assessments are not operational assessments. In short, annual planning assessments become meaningless as durations become shorter than six months. An annual TPL-001-4 planning assessment represents a reasonable general snapshot of the system assuming all equipment is available and in-service except for the specific contingency performed. Daily operational conditions almost never have the system entirely intact and available due to necessary system maintenance and testing.

Likes 0

Dislikes 0

Response

Hien Ho - 1,3,4,5,6

Answer

Document Name

Comment

1. No risks. Planned maintenance outages of less than six months in duration will be studied and coordinated per TOP standards. We believe that the operation environment is more suited to these outages than including them into the TPL standard. Throughout WECC, owners have a financial incentive to coordinate outages at appropriate times of year. Typically outage scheduling for major equipment is based on a combination of looking at historical system conditions and by having ongoing discussions with potentially affected entities operations departments. This type of operational coordination happens multiple times throughout the year instead of the once per year TPL study. If FERC/NERC determines additional outages must be modeled, certain subsets may more cost effective than modeling all outages. The subset could be EHV facilities, CIP Medium Impact Facilities or the Facilities specified in PRC-023 R1-R5.

Likes 0

Dislikes 0

Response

John Pearson - 2 - NPCC

Answer

Document Name

Comment

ISO-NE agrees with the Commission's concern that registered entities should have the capability and authority to study the reliability impacts of planned maintenance outages scheduled greater than 12 months in advance of the proposed outage date. ISO-NE does not agree, however, that such outages should be considered in TPL-001-4 studies. Based on ISO-NE's experience, it would not be cost-effective to establish a new requirement in TPL-001-4 to consider such outages, but NERC might consider expanding the application of IRO-017-1 to outages planned outside of Operations Planning Horizon.

By way of context, in New England, Transmission Owners have submitted nearly 50K outage requests since 2008, and Generation owners have submitted nearly 30K requests since 2011, to ISO-NE. ISO-NE's outage coordination process covers outage requests made up to 24 months in advance of the proposed start date. ISO-NE studies the reliability and congestion impacts of proposed outages, and under its process, ISO-NE has the authority to approve, delay or deny the outage depending on whether adverse reliability or economic impacts would otherwise occur.

In the timeframes noted above, ISO-NE has therefore assessed the reliability and congestion impacts of tens of thousands of transmission and generation outage requests – for about 1500 of those, the TO or GO submitted the request over 12 months in advance of the proposed outage date. In administering its program, ISO-NE has avoided adverse reliability impacts that would have resulted from the transmission or generation element being removed from service on the schedule that was initially proposed. And, ISO-NE's repositioning of outages has saved consumers approximately \$200M over the last 10 years. For more details, see ISO-NE's *Annual Report on Outage Coordination* at <http://www.iso-ne.com/static-assets/documents/2016/05/2015-ison-transmission-equipment-outage-coordination.pdf>

Adding a requirement to study planned maintenance outages as part of the TPL assessment is therefore an unnecessary added burden. ISO-NE already accomplishes the same purpose through its Outage Coordination program. If NERC and FERC have a concern that some registered entities are not assessing the reliability impacts of planned maintenance outages that are being scheduled over 12 months in advance with less than 180 day duration, Reliability Standard IRO-017-1 (going into effect 4/1/17) could be modified to require the RC, BA and TOP to assess planned maintenance outages in the Near-Term Transmission Planning Horizon in addition to the Operations Planning Horizon.

Addressing reliability risks associated with planned maintenance will be cost-effective through an Outage Coordination program, such as the one administered by ISO-NE (and as contemplated by IRO-017-1). This approach also avoids disruption to the long-term system planning assessment under TPL-001-4 for several reasons, including:

- The iterative process of scheduling and approving outages requires a high degree of communication and coordination up to and including Real-time. Operations personnel have developed the experience, tools, procedures and process needed to manage and minimize reliability and economic impacts associated with planned outages. IRO-017-1 requires the development of a process, communication and resolution of identified conflicts.
- In contrast, studies under TPL-001-4 are typically done by system engineers doing relatively static studies on a relatively known system, and publishing a needs assessment. Requiring such an assessment under TPL-001-4 would simply be an additional step to what outage coordinators need to do anyway.

In sum, there is no risk to the reliable operation of the Bulk Power System if outages less than six months in duration are not considered in studies associated with TPL-001-4 so long as an outage coordination process is in place. When outages are coordinated (as all relevant registered entities must do under IRO-017-1 starting in April 2017) these registered entities should ensure that the reliability of the BPS is maintained under these conditions. Evaluation of these shorter duration outages in the context of TPL-001-4 is not a meaningful exercise.

Likes 0

Dislikes 0

Response

Amy Casuscelli - 1,3,5,6 - MRO,WECC,SPP RE

Answer

Document Name

Comment

Xcel Energy feels that there is minimal to no risk to the reliable operation of the Bulk Power System by not considering planned maintenance outages of less than six months in duration in the planning horizon studies of TPL-001-4.

Likes 0

Dislikes 0

Response

Lauren Price - 1 - MRO,RF

Answer

Document Name

Comment

Response: *ATC supports the revision of the TPL-001-4 standard to include the assessment of planned outages (scheduled or future to-be-scheduled outages) that are less than 6 months in duration. ATC further suggests that the revisions give Transmission Planners and Planning Coordinators the flexibility to evaluate areas of their BPS where planned outages may result in a large amount of firm load loss or firm transmission service interruption. These planned outages should only be evaluated for system off peak periods when planned outages would typically be taken.*

Please explain your response: *ATC believes that a properly planned transmission system is one that ensures planned outages for durations of less than 6 months can be accomplished during typically used off-peak conditions without the risk of a large amount of firm load loss or firm transmission service interruption. The subsequent contingencies for the planned outage evaluations would only include the planning event contingencies that do not allow interruption of firm transmission service or non-consequential load loss (e.g. P1, P2.1, P3, and selected EHV contingencies).*

Likes 0

Dislikes 0

Response

Lee Maurer - 1

Answer

Document Name

as seasonal, next-day, and current-day assessments.

Annual Planning Assessments are not operational assessments. In short, annual planning assessments become meaningless as durations become shorter than six months. An annual TPL-001-4 planning assessment represents a reasonable general snapshot of the system assuming all equipment is available and in-service except for the specific contingency performed. Daily operational conditions almost never have the system entirely intact and available due to necessary system maintenance and testing.

Likes 0

Dislikes 0

Response

Jennifer Losacco - 1 - FRCC

Answer

Document Name

Comment

Florida Power and Light appreciates NERC developing the cost effectiveness pilot to determine the risks and cost associated with standard changes. In terms of TPL-001-4, the risk is negligible as all major planned outages within the FRCC are studied by Operation Engineers in a seasonal assessment less-than a year out. Outage planning is fundamentally an operating function since entities operate around planned outages, not build to support them. Therefore, outage planning concerns could be better addressed by enhancing the outage planning and coordination process in the TOP standards.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer

Document Name

Comment

Planned maintenance outages are considered in operational planning studies which assess the reliable operation of the BPS. Multiple contingency studies for off-peak conditions which consider maintenance outages for a single element plus the subsequent unplanned loss of an additional single element are included in TPL-001-4. These studies support system reliability, system maintenance, and operational flexibility. Moreover, additional transmission studies including planned maintenance outages would typically overlap with operational studies. Therefore, TVA sees a low risk to the reliable operation of the BPS if planned maintenance outages of less than six months duration are not considered in TPL-001-4 studies.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer

Document Name Final_SRC Unofficial_Comment_Form_CEP_042716.docx

Comment

The ISO/RTO Council agrees that planned maintenance outages should be considered in planning for the reliable operation of BPS. However, RCs already take into account requests for planned maintenance outage submitted by entities in their respective RC areas through their outage coordination procedures. RCs presently have the authority to deny any planned maintenance outages that would create reliability risks and thereby mitigate any potential risks resulting from planned maintenance outages in its RC area. Reliability Standard IRO-017-1 – Outage Coordination, effective April 1, 2017, codifies this practice by requiring RCs to establish a generation and transmission outage coordination process. Consequently, there is no risk to the reliable operation of the BPS if planned maintenance outages of less than six months in duration are not considered in planning studies during one or both seasonal off-peak periods under the TPL-001-4 standard. Such a requirement may not be helpful anyway, since a significant number of planned maintenance outages conducted in any given year will not be scheduled or submitted for approval far enough in advance to be incorporated into the planning assessment required under TPL-001-4.

*please note CAISO does not join the SRC answer to Question #1

Likes 0

Dislikes 0

Response

Douglas Webb - 1,3,5,6 - SPP RE

Answer

Document Name

Comment

There is little or no risk to the BPS since planned maintenance outages of less than six months in duration are considered as part of the TOP-002 Standards.

In a long range planning study/assessment there might be an exceedance identified for a maintenance outage but, normally, mitigation of that exceedance would take place during near term/real time operational studies. The actual maintenance outage will be impacted/affected more by actual operational conditions than some future set of assumed conditions.

Likes 0

Dislikes 0

Response

Oshani Pathirane - 1,3 - NPCC

Answer	
Document Name	
Comment	
Please see response below.	
Likes 0	
Dislikes 0	
Response	
Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators	
Answer	
Document Name	
Comment	
The intent of NERC Reliability Standard TPL-001-4 is to establish transmission system planning studies, for both near-term and long-term planning horizons, operating over a broad range of system conditions and probable contingencies. These studies are meant to identify projected risks that can be mitigated through near and long-term solutions, such as delaying generator retirements and constructing new transmission facilities, while limiting incremental system changes, such as planned short-term facility outages. The inclusion of these incremental system changes is more appropriate for seasonal operational planning assessments due to the smaller duration studied.	
Likes 0	
Dislikes 0	
Response	
Jason Snodgrass - 1	
Answer	
Document Name	
Comment	
Since P6 events evaluate N-2 contingencies, there appears to be no real risk to not modeling known outages of any duration. Furthermore, on our system, outages are not scheduled more than thirteen months in advance. Therefore, there are no known outages on our system in the planning horizon.	
Likes 0	
Dislikes 0	
Response	

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA

Answer

Document Name

Comment

FMPA initially points out this question mixes several different concepts that are currently handled in different ways. Seasonal studies are not currently required by the TPL-001-4 standard, though some PCs and TPs may be including seasonal cases in their planning horizon cases. The existing reference in TPL-001-4 to outages of a duration greater than 6 months is in R1.1, a set of conditions that apply to all system models used in the assessment. Thus FMPA believes this question should be asked "...if planned maintenance outages of less than 6 months in duration are not considered in studies prepared for annual planning assessments." We note that the concerns raised here include a somewhat "reverse" perspective on the standard requirements. FMPA believes that the TPL-001-4 standard sets the minimum criteria for an entity's Planning Assessment. To say that something is excluded (as worded in the bulleted section above) implies the standard mandates this item not be studied. From FMPA's perspective, there is currently leeway that allows an entity to study any such transmission or generation outage it wishes, and to do so at any level of rigor (via an individual contingency, a sensitivity prepared under R2.1.4., or via a near term of even long term planning horizon study case). The question is, instead, whether the industry is insufficiently studying planned outages of major transmission and generation facilities in the absence of direction to include a minimum level of such studies.

In most cases, FMPA believes there is no risk to the BPS from not considering planned maintenance outages of less than six months in System models used for Planning Assessments. Planned maintenance outages are already studied, not only in the operations horizon, but also further out in time when they are known. Planning horizon System models, including those for Off-Peak periods, are intended to represent projected System conditions for specific scenarios. Mandating inclusion of short duration outages as a variable in creating models could result in far more scenarios than are necessary for an effective Planning Assessment, and would provide little benefit. However, FMPA does believe there are specific scenarios involving planned maintenance outages that could pose a risk to the BPS and warrant special attention. The PC and TP should have the leeway to determine which scenarios should be included in their assessments and NERC should not structure standard Requirements that mandate a specific minimum number, nor that require "all" such scenarios.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer

Document Name

Comment

The intent of NERC Reliability Standard TPL-001-4 is to establish transmission system planning studies, for both near-term and long-term planning horizons, operating over a broad range of system conditions and probable contingencies. These studies are meant to identify projected risks that can be mitigated through near and long-term solutions, such as delaying generator retirements and constructing new transmission facilities, while limiting incremental system changes, such as planned short-term facility outages. The inclusion of these incremental system changes is more appropriate for seasonal operational planning assessments due to the smaller duration studied.

Likes 0

Dislikes 0

Response	
Michelle Amarantos - 1,3,5,6	
Answer	
Document Name	
Comment	
<p>AZPS believes this creates little risk in the planning horizon. Any potential issues are best identified through next-day, real time and seasonal analysis studies (in conjunction with applicable RCs) to addresses these short duration issues, rather than through TPL-001-4. These planned maintenance outages tend to be rescheduled, as needed, in the operations horizon to account for present conditions.</p>	
Likes	0
Dislikes	0

Response	
Ruida Shu - 1,2,3,4,5,6,7 - NPCC, Group Name RSC No Dominion, Con-Ed and NextEra	
Answer	
Document Name	
Comment	
<p>ISO-NE, one of our member organizations, agrees with the Commission’s concern that registered entities should have the capability and authority to study the reliability impacts of planned maintenance outages scheduled greater than 12 months in advance of the proposed outage date. ISO-NE does not agree, however, that such outages should be considered in TPL-001-4 studies. Based on ISO-NE’s experience, it would not be cost-effective to establish a new requirement in TPL-001-4 to consider such outages, but NERC might consider expanding the application of IRO-017-1 to outages planned outside of Operations Planning Horizon.</p> <p>By way of context, in New England, Transmission Owners have submitted nearly 50K outage requests since 2008, and Generation owners have submitted nearly 30K requests since 2011, to ISO-NE. ISO-NE’s outage coordination process covers outage requests made up to 24 months in advance of the proposed start date. ISO-NE studies the reliability and congestion impacts of proposed outages, and under its process, ISO-NE has the authority to approve, delay or deny the outage depending on whether adverse reliability or economic impacts would otherwise occur.</p> <p>In the timeframes noted above, ISO-NE has therefore assessed the reliability and congestion impacts of tens of thousands of transmission and generation outage requests – for about 1500 of those, the TO or GO submitted the request over 12 months in advance of the proposed outage date. In administering its program, ISO-NE has avoided adverse reliability impacts that would have resulted from the transmission or generation element being removed from service on the schedule that was initially proposed. And, ISO-NE’s repositioning of outages has saved consumers approximately \$200M over the last 10 years. For more details, see ISO-NE’s <i>Annual Report on Outage Coordination</i> at http://www.iso-ne.com/static-assets/documents/2016/05/2015-isonet-transmission-equipment-outage-coordination.pdf</p>	

Adding a requirement to study planned maintenance outages as part of the TPL assessment is therefore an unnecessary added burden. ISO-NE already accomplishes the same purpose through its Outage Coordination program. If NERC and FERC have a concern that some registered entities are not assessing the reliability impacts of planned maintenance outages that are being scheduled over 12 months in advance with less than 180 day duration, Reliability Standard IRO-017-1 (going into effect 4/1/17) could be modified to require the RC, BA and TOP to assess planned maintenance outages in the Near-Term Transmission Planning Horizon in addition to the Operations Planning Horizon.

Addressing reliability risks associated with planned maintenance will be cost-effective through an Outage Coordination program, such as the one administered by ISO-NE (and as contemplated by IRO-017-1). This approach also avoids disruption to the long-term system planning assessment under TPL-001-4 for several reasons, including:

- The iterative process of scheduling and approving outages requires a high degree of communication and coordination up to and including Real-time. Operations personnel have developed the experience, tools, procedures and process needed to manage and minimize reliability and economic impacts associated with planned outages. IRO-017-1 requires the development of a process, communication and resolution of identified conflicts.
- In contrast, studies under TPL-001-4 are typically done by system engineers doing relatively static studies on a relatively known system, and publishing a needs assessment. Requiring such an assessment under TPL-001-4 would simply be an additional step to what outage coordinators need to do anyway.

In sum, there is no risk to the reliable operation of the Bulk Power System if outages less than six months in duration are not considered in studies associated with TPL-001-4 so long as an outage coordination process is in place. When outages are coordinated (as all relevant registered entities must do under IRO-017-1 starting in April 2017) these registered entities should ensure that the reliability of the BPS is maintained under these conditions. Evaluation of these shorter duration outages in the context of TPL-001-4 is not a meaningful exercise.

Likes 0

Dislikes 0

Response

Angela Gaines - 1,3,5,6

Answer

Document Name

Comment

Thank you for the opportunity to file comments in the Cost Effectiveness Pilot. At this time PGE does not have the ability to schedule maintenance activities with duration of less than 6 months in the 2 year cases with any degree of accuracy. Planned outages are scheduled for off peak conditions and many are scheduled to not overlap. Developing one case to include all of these outages would be overly conservative. These outages are studied in the Operations Horizon to confirm that there is not risk.

Likes 0

Dislikes 0

Response

1a. If there are risks to the reliable operation of the BPS, are the likelihood of the occurrence of these risks low, medium or high?

Please explain your response:

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Kelly Silver - 1,3,5,6, Group Name Con Edison

Answer

Document Name

Comment

There is no risk to the BPS in the Planning timeframe. The inclusion of planned outages of less than six months in duration in planning studies is not appropriate. TPL-001-4 already requires Transmission Planners to consider planned maintenance outages greater than six months in duration. These kind of short-term planning outages are more appropriate in the Operations timeframe—that's where the risk may be. There is no risk in not including these short-term planned outages in the Planning timeframe.

Likes 0

Dislikes 0

Response

Leonard Kula - 2

Answer

Document Name

Comment

Generally speaking, there does not appear to be any real risks to the reliable operation of the BPS if outages less than 6 months are not included in planning assessments. These planned outages are normally considered and assessed in operations planning analyses by the Transmission Operator and Reliability Coordinator. As an example, consistent with the recently adopted IRO-017-1 standard, the IESO has policy and procedure in place to ensure planned outages greater than 3 weeks are coordinated and assessed in operations planning time

frame (next day to 1 year in advance). The IESO believes this is the appropriate process to assess outages for which operating measures are either the only means or a more effective means than their system expansion or upgrading counterparts as the latter would only be effective if time would allow for the installation of new facilities or upgrading existing facilities to address the risk (or maintain the required transmission transfer capability).

The most significant drawback of not including such planned outages is perhaps the inaccurate assessment of available transfer capabilities (ATCs) for the beyond 1-year time frame. Not having accurately calculated ATC does not necessarily result in unreliable operation of the BPS since any excessive reservation and use of the transmission will be identified during the interchange implementation phase.

The IESO does not believe that there is any real risk to the reliable operation of the BPS if planned outages of less than 6 months are not included in the TPL-001 standard. In fact, if such outages were included in the TPL-001 standard, they would be redundant with like requirements in the IRO-017-1 standard resulting in additional cost without any real reliability benefits. To cover the timeframe from one year to the time period where sufficient lead time could allow for transmission expansion/upgrading to address performance issues during the planned outages, consideration may be given to extending the time period for outage coordination (in IRO-017-1) where appropriate as an equally effective but less costly alternative.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

No risks were identified.

Planned outage impacts are studied in the operating horizon to ensure system integrity is maintained in the event of any contingencies as identified in the Regional SOL Methodology. The operating horizon studies have a more accurate depiction of the system (e.g. other planned outages), than any studies performed in a 2-10 year planning analysis.

Likes 0

Dislikes 0

Response

Ruida Shu - 1,2,3,4,5,6,7 - NPCC, Group Name RSC No Dominion, Con-Ed and NextEra

Answer

Low

Document Name

Comment

The reliability risk is extremely small based on ISO-NE's exercise of outage coordination authority and established process of managing reliability and

economic impacts.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Low

Document Name

Comment

These concerns are best covered through other studies in the operations horizon.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer

Low

Document Name

Comment

We believe, when studied under these conditions, the risks to reliable BPS operations are low, as short-term operational planning assessments already address the concern identified by the FERC directive.

Likes 0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA

Answer

Low

Document Name

Comment

Planned maintenance outages in the planning horizon timeframe with the potential to cause impacts to the BPS are infrequent. Most significant impacts will be captured by existing N-1-1 analyses, leaving only a small population of significant outages, most of which can be dealt with in the operating

horizon.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer

Low

Document Name

Comment

We believe, when studied under these conditions, the risks to reliable BPS operations are low, as short-term operational planning assessments already address the concern identified by the FERC directive.

Likes 0

Dislikes 0

Response

Shannon Mickens - 2 - SPP RE, Group Name SPP Standards Review Group

Answer

Low

Document Name

Comment

Planned maintenance outages of less than six months in duration aren't necessary for long-term annual planning assessments such as TPL-001-4. The annual TPL-001-4 assessments which look in the near-term (years 1 – 5) and long-term (years 6 – 10) planning horizons are reasonable projections of system conditions and aren't meant to represent the specific operational type concerns for outages shorter than six months.

By removing the six month threshold, FERC opens the door to annual TPL-001-4 planning assessments being performed for one day outages. Short term outages are considered in operational planning assessments such as seasonal, next-day, and current-day assessments.

Also, we have a concern that the term 'reliable operation' should be capitalized in the question listed above due to the fact that it's a defined term in the NERC Glossary. Additionally, the definition of the term addresses the support of the Bulk Power System (BPS). However if the drafting team has another directions for this term (since it's lower case), we would ask the drafting team to provide some clarity on the intent of the use and direction of the term moving forward.

Likes 0

Dislikes 0

Response

Oshani Pathirane - 1,3 - NPCC

Answer Low

Document Name

Comment

The risk to the reliable operation of the BPS - if outages less than 6 months in duration continue to be excluded from planning assessments over the time horizon of 18 months to 20 years - is low.

Over an increasing time horizon, all outage information becomes progressively less complete and less accurate. Yet sufficient capacity must be planned over the long term on the *assumption* of certain durations and magnitudes of anticipated contingencies required. The knowledge of certain planned outages may help validate or support certain outage assumptions, but in and of itself, such knowledge likely does not significantly impact or change the long term planning criteria, particularly over the longer term planning horizon.

Also, such planned outages are normally assessed in Operations Planning Analyses by the Transmission Operator and Reliability Coordinator over the shorter term horizon. As per the recently adopted IRO-017-1 standard, planned outages greater than 3 weeks but less than approximately 6 months in duration are coordinated and assessed within the Operations Planning time frame, such being from the next day to 1 year in advance. Further, if planned outages less than 6 months in duration – those which are planned over the shorter term horizon of less than 1 year - were to be included in TPL-001-4, these would be redundant with requirements in IRO-017-1, thus resulting in additional costs to entities without a significant benefit to reliability.

Likes 0

Dislikes 0

Response

Douglas Webb - 1,3,5,6 - SPP RE

Answer Low

Document Name

Comment

There is little or no risk to the reliable operation of the BPS since planned maintenance outages of less than six months in duration are considered as part of the TOP-002 Standards.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer Low

Document Name

Comment

The likelihood of any negative impact to the BPS attributable to not including planned maintenance outages of less than six months in planning studies is low because these impacts are already evaluated through RC outage coordination activities.

The risk to the BPS is low because RCs already study and address these outages through their outage coordination procedures, so they do not need to be considered as part of the planning assessment under TPL-001-4.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer

Low

Document Name

Comment

Multiple contingency studies for off-peak conditions which consider maintenance outages for a single element plus the subsequent unplanned loss of an additional single element are included in TPL-001-4. Additional transmission studies including planned maintenance outages would typically overlap with operational studies.

Likes 0

Dislikes 0

Response

Jennifer Losacco - 1 - FRCC

Answer

Low

Document Name

Comment

The risk to the reliable operations of the Bulk Power System (BPS) is low. Planned outages are studied by Operations Personnel, as required by TOP-003, and denied if any reliability risks are identified.

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer	Low
Document Name	Cost Effectiveness Pilot Unofficial Comment Form Final Comments_BEPC.docx
Comment	
The likelihood of an occurrence of the probability of a contingency to occur combined with the duration of an outage of less than 6 months is low.	
Likes 0	
Dislikes 0	
Response	
Karen Webb - 1,3,5	
Answer	Low
Document Name	
Comment	
For the majority of utilities, the risk is minimal as these outages are studied in seasonal, next-day, and current day studies for operations performed for existing TOP Standards.	
Likes 0	
Dislikes 0	
Response	
Scott Langston - 1,3,5	
Answer	Low
Document Name	
Comment	
For the majority of utilities the risk is minimal as these outages are studied in seasonal, next-day and current day studies for operations performed for existing TOP Standards.	
Likes 1	Tallahassee Electric (City of Tallahassee, FL), 5, Webb Karen
Dislikes 0	
Response	
Robert Tallman - 3,5,6 - SERC, Group Name LG&E and KU Energy	
Answer	Low

Document Name

Comment

Operations planning studies are performed prior to approval of the planned outage. If there exists a risk to the BPS, then the planned outage is canceled or postponed until the outage can be taken at a time when there is no risk to the BPS. The operations planning studies covers the timeframe of the planned outage and is done in advance of the planned outage.

Likes 0

Dislikes 0

Response

Amy Casuscelli - 1,3,5,6 - MRO,WECC,SPP RE

Answer

Low

Document Name

Comment

Xcel Energy feels that the perceived risks discussed here are addressed by the NERC Standard IRO-017-1, whose purpose is "To ensure that outages are properly coordinated in the Operations Planning time horizon and Near-Term Transmission Planning Horizon." As such, any perceived deficiencies in addressing the BPS reliability impact of planned maintenance outages of less than six months in duration should be addressed in a modification of IRO-017-1 and not in TPL-001-4.

Likes 0

Dislikes 0

Response

John Pearson - 2 - NPCC

Answer

Low

Document Name

Comment

The reliability risk is extremely small based on ISO-NE's exercise of outage coordination authority and established process of managing reliability and economic impacts.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer	Low
Document Name	
Comment	
The likelihood of an occurrence of the probability of a contingency to occur combined with the duration of an outage of less than 6 months is low.	
Likes 0	
Dislikes 0	
Response	
Oliver Burke - 1,5	
Answer	Low
Document Name	
Comment	
Operations functions (RCs and TOPs) can provide feedback to long-term planning functions if certain facilities are difficult to get outages on. Existing standards and processes cover this.	
Likes 0	
Dislikes 0	
Response	
David Jendras - 1,3,6	
Answer	Low
Document Name	
Comment	
Given the scope of contingency events already considered in TPL-001-4, it would seem unlikely that critical events would be missed. In addition, such outage events would be reviewed in the Operational Planning horizon for any issues which would occur. Information would be expected to be sparse with respect to planned outages occurring in the Planning time horizon.	
Likes 0	
Dislikes 0	
Response	
Jason Marshall - NA - Not Applicable - NA - Not Applicable	

Answer	Low
Document Name	
Comment	
<p>In New England, NESCOE understands the risks to be low for the reasons explained below and in ISO-NE's comments submitted today. There are two factors that mitigate the reliability risk in New England. First, as discussed above, there is an active and ongoing process in New England, under existing protocols, to coordinate and manage outages. Second, because ISO-NE has procedures in place to account for outages, it is prepared to take operational actions to address needs that may arise.</p>	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Low
Document Name	
Comment	
<p>As explained in question 1, Duke Energy believes the likelihood of occurrence of any risk is low based on the ability of Operational Planners to evaluate outages in the operating horizon and mitigate potential risks to the system by modifying the scheduling of outages, re-configuring of the transmission system, and other real-time actions that could be taken to mitigate risk to the BPS.</p>	
Likes 0	
Dislikes 0	
Response	
Sandra Shaffer - 6	
Answer	Low
Document Name	
Comment	
<p>While the probability of an unplanned contingency during a short duration (less than six month) planned outage is much lower than during a longer planned maintenance outage period, these types of scenarios are already evaluated and planned for in the TPL-001-4 planning assessment through the various N-1-1 contingency combinations. It is PacifiCorp's opinion that the short-term planned outage scenarios are better addressed in the operating horizon.</p>	
Likes 0	
Dislikes 0	

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer Low

Document Name

Comment

The risks are minimal because it is rare for outages of less than six months to be known in the planning horizon (more than 1 year out). For those outages that are known, the only risk to BPS reliability is if operations studies do not see the risks that would have been seen by more extensive planning studies, which would be rare.

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer Low

Document Name

Comment

SOL reduction and/or mitigation procedures, if any, would be determined ahead of time as part of the next-day study/operational planning study work in particular if these planned outages are known in advance (< 6 months).

Note that these outages can also be addressed as part of the sensitivity work under TPL-001-4 requirement 2.1.4.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer Low

Document Name

Comment

Planned maintenance outages are considered in operational planning studies which assess the reliable operation of the BPS. Multiple contingency studies for off-peak conditions which consider maintenance outages for a single element plus the subsequent unplanned loss of an additional single element are included in TPL-001-4. These studies support system reliability, system maintenance, and operational flexibility. Moreover, additional transmission studies including planned maintenance outages would typically overlap with operational studies. Therefore, we see a low risk to the

reliable operation of the BPS if planned maintenance outages of less than six months duration are not considered in TPL-001-4 studies. In addition, information would be expected to be sparse with respect to planned outages occurring in the Planning time horizon.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer

Low

Document Name

Comment

Since all planned outages have been studied, the occurrence of these risks shall be very low.

Likes 0

Dislikes 0

Response

Joe Tarantino - 1,3,4,5,6 - WECC

Answer

Low

Document Name

Comment

As previously mentioned, we believe transmission planning studies are unnecessary where outage durations are less than 6-months. However, if the Standard Drafting Team develops any requirements for evaluation of short-term planned maintenance outage those requirements should provide options that limit the evaluations to "critical" facilities such as transfer paths. The transmission planner should not be obligated to study every planned maintenance; an approach that would create an administration burden without justifiable reliability benefit.

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO

Answer

Low

Document Name

Comment

The likelihood of an occurrence of the probability of a contingency to occur combined with the duration of an outage of less than 6 months is low.

Likes 0

Dislikes 0

Response

Nick Vtyurin - 1,3,5,6 - MRO

Answer

Low

Document Name

Comment

The likelihood is low because the outages are planned and studied in the Operational Horizon. The BES is operated within revised SOLs if required or the planned “multiple” outages are cancelled.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Low

Document Name

Comment

CenterPoint Energy does not see risks associated with the current six-month threshold for modeling known outages of generation or Transmission Facility(ies) as specified in TPL-001-4 R1.1.2. Planned maintenance outages of generation or Transmission Facility(ies) with a duration of at least six months are rarely, if ever, scheduled far enough in advance to be included in the Near-Term Transmission Planning Horizon. Shortening the timeframe would only decrease the likelihood of identifying a relevant outage. However, TPL-001-4 R2.1.4 allows for sensitivity analysis to be performed for outages less than six months in duration. If such outages are deemed potentially critical to system reliability, they may be included in the assessment under the current Standard. Furthermore, outages of less than six months reflect operational scenarios and are considered in required operational planning assessments.

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer	Low
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Low
Document Name	
Comment	
As explained above there are no risks because all planned outages are studied by Operations Planning.	
Likes 0	
Dislikes 0	
Response	
Bob Case - 1,3,5,6 - WECC	
Answer	Low
Document Name	
Comment	
In Black Hills' estimation, there are no risks to reliable operation of the BES, so long as the utility is appropriately completing its operational and outage coordination studies.	
Note that the study work itself would be fairly minimal. The larger cost would be hours associated with coordination and documentation; satisfying the burden of proof.	
Likes 0	
Dislikes 0	
Response	
Lauren Price - 1 - MRO,RF	
Answer	Medium

Document Name	
Comment	
<p>Response: <i>The overall likelihood of key planned outages less than 6 month in duration and most planning event contingency combinations in some areas of our system may be medium.</i></p> <p>Please explain your response: <i>The likelihood of a planned (scheduled or future to-be-scheduled) outages is 100% (high). And the likelihood of an unplanned planning event contingency occurring during planned outage conditions may be low. So, the overall likelihood of the some planned outages and unplanned contingencies combinations is probably medium.</i></p>	
Likes 0	
Dislikes 0	
Response	
Terry Bilke - 2	
Answer	Medium
Document Name	
Comment	
<p>The BPS may not operate reliably for certain planned maintenance outages if the system is not planned to accommodate such outages, or restrict the RC outage coordination processes in approving certain planned outages, which in turn could result in a safety issue, inadvertent facility damage, or a subsequent forced outage affecting reliability.</p>	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - 10	
Answer	Medium
Document Name	
Comment	
<p>If multiple outages are requested during the same time period and the outages cause potential reliability conflicts, the Reliability Coordinator (RC) has the ability to resolve the scheduling conflicts by rejecting outages.</p>	
Likes 0	
Dislikes 0	
Response	

1b. What costs should be considered when evaluating these risks or in adding planned maintenance outages less than six months to TPL-001-4?

Please explain your response:

Bob Case - 1,3,5,6 - WECC

Answer

Document Name

Comment

This would likely require an additional engineer for every entity required to comply with the TPL standards.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

The cost of adding planned maintenance outages less than six months includes the cost of additional study work. If there are multiple planned outages in the same year, multiple scenarios will need to be studied to get an accurate analysis, dramatically increasing the amount of study work. Again, most of this analysis is already performed in the operating horizon, leading to further duplication of work.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

The cost of performing additional studies in the Planning assessment should be considered. As a practical matter, it would be an extremely rare circumstance for there to be a need to build a facility to accommodate a planned outage and the timeline to do so makes it likely impractical.

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer

Document Name

Comment

The additional costs will likely be for labor. Work would need to be done in analyzing BPA's outage scheduling system and merging the data into the planning assessment studies. As outages are added, removed or moved, studies may need to be re-run for the assessment. A system or additional process would need to be added to track changes to the outage schedule.

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

Delayed projects and/or maintenance cost may result if outage requests to perform work are rejected.

Additionally, planning departments may have to adjust processes to review project/maintenance schedules and incorporate these schedules into the planning cases. Information, already captured in a different processes, may have to be integrated into the planning process.

Likes 0

Dislikes 0

Response

Leonard Kula - 2

Answer

Document Name

Comment

The additional cost will likely be the human resource time required to include the outages in the planning assessment, which could be

redundant with the same task (but not a replacement) in outage coordination and operations planning analyses which in general are conducted with more accurate system data thanks to the more predictive conditions at a closer time frame.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

Costs to be considered include the additional labor (man hours, number of FTEs, or out-sourcing) to perform the additional assessments. Licensing costs of modeling tools may also increase if additional FTEs are added.

Likes 0

Dislikes 0

Response

Nick Vtyurin - 1,3,5,6 - MRO

Answer

Document Name

Comment

The cost would be the burden of studying the planned maintenance outages, which would be a duplication of effort already performed by the Transmission Operator, Balancing Authority or Reliability Coordinator.

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO

Answer

Document Name

Comment

Additional costs to consider include duplicative staff, duplicative equipment, additional computing time, and compliance enforcement costs related to performing additional annual planning assessments for TPL-001-4 which are already adequately and properly covered in seasonal, next-day, and current day studies. If daily PRC-005-2 outages must be evaluated, then the number of duplicate annual planning contingency studies with no additional reliability benefit is significant.

Likes 0

Dislikes 0

Response

Joe Tarantino - 1,3,4,5,6 - WECC

Answer

Document Name

Comment

As previously mentioned, we believe transmission planning studies are unnecessary where outage durations are less than 6-months. However, if the Standard Drafting Team develops any requirements for evaluation of short-term planned maintenance outage those requirements should provide options that limit the evaluations to “critical” facilities such as transfer paths. The transmission planner should not be obligated to study every planned maintenance; an approach that would create an administration burden without justifiable reliability benefit.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer

Document Name

Comment

Reliability is the most important factor at the District. Impacts on the overall reliability of the BES are not allowed. Cost has not been considered when planned outages are determined.

Likes 0

Dislikes 0

Response	
Kelly Silver - 1,3,5,6, Group Name Con Edison	
Answer	
Document Name	
Comment	
N/A. No risks in the Planning horizon. An undue burden. No additional cost should be added.	
Likes 0	
Dislikes 0	
Response	
David Greene - 10, Group Name SERC PSS	
Answer	
Document Name	
Comment	
Costs that should be considered include engineering hours to coordinate the inclusion of the planned maintenance outages into the system models, engineering hours to perform the additional studies, and potential capital funding required for corrective action plans to address issues that historically could have been mitigated through operational techniques. As a practical matter, it would be an extremely rare circumstance for there to be a need to build a facility to accommodate a planned outage and the timeline to do so makes it likely impractical.	
Likes 0	
Dislikes 0	
Response	
Glenn Pressler - 1,3,5	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	

Response

Laura Nelson - 1

Answer

Document Name

Comment

This should be part of the current TPL-001-4 requirement 2.1.4 scope, in particular if these outages are deemed to be significant by the Transmission Planner. Otherwise they should be dealt with under Operational Planning.

If "all" planned maintenance outages less than six months are required to be studied under TPL-001-4, then the additional cost should be commensurate with the number of outages to be studied; each outage would correspond in effect to a new case for which an assessment is being required.

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

Document Name

Comment

It is likely that an extra full time employee may be required because of the potential amount of labor and time involved in the preparation and assessment of outage combinations intended for planned maintenance outages with a duration of less than six months.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer

Document Name

Comment

Additional costs to consider include the substantial increase in the volume of outages to be analyzed and the incremental man-hours necessary to perform the analysis. This may require an increase in highly specialized staff, an increase in support staff, related training costs, additional equipment and facilities, additional computing time, and additional compliance enforcement costs necessary to perform annual planning assessments for TPL-001-

4.

Likes 0

Dislikes 0

Response

Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy

Answer

Document Name

Comment

There are costs in engineering time and labor associated with Transmission Planners and Planning Coordinators conducting studies associated with evaluation of known, planned outages less than six months in duration. The expense of the time and labor associated with these studies will be increasingly higher because with each incremental decrease in the duration of outages that must be studied, the frequency of occurrence such planned outages increases – requiring more study time/analysis. The value of the analysis so far out in front of the actual outage schedule date is suspect. For instance, a known planned outage for 2018 may be evaluated in 2016. Changes in outage plans (all outages) and system conditions in the two year interim time between the analysis and the outage are likely to occur, and will have made the analysis meaningless. This can create operational risk because of the error induced by changes in overall outage plans and system conditions may not be recognized as we move from the planning to the operating horizon. There is a risk of complacency in evaluating reliability impacts of outages in the operating horizon because the impacts were thought to have been evaluated under the TPL-001-4 standard.

Likes 0

Dislikes 0

Response

Jason Marshall - NA - Not Applicable - NA - Not Applicable

Answer

Document Name

Comment

As a general matter, NESCOE greatly appreciates NERC's initiation of this cost-effectiveness pilot. NESCOE has expressed its strong support in the past for NERC's efforts to incorporate cost-effectiveness analysis into its standard development. It is a priority that the appropriate level of infrastructure is in place to achieve a robust and reliable bulk electric system. Indeed, in New England, consumers have invested heavily in transmission infrastructure for reliability needs. Today, transmission-related costs comprise a greater percentage of a New England consumer's bill than in any other RTO region. NESCOE appreciates these efforts to identify cost-effective approaches to new standards going forward. As NESCOE has stated in past comments, incremental reliability gains cannot be considered in a vacuum, separate from an understanding of the magnitude of risk and cost associated with federal reliability standards. NERC's consideration of costs, reliability risks and benefits should help tailor the most appropriate and cost effective approach to achieving a reliability objective.

In the spirit of a pilot project, NESCOE offers one early broad observation that might increase industry participation in providing input on the expected costs associated with a proposed new or revised standard. To date, NESCOE understands that NERC has relied on industry participants to volunteer cost estimates related to a proposed standard and that, given the resources involved, many entities decline to provide cost details. One approach to

encourage greater participation, and increase understanding of cost impacts, would be for NERC staff or standard development teams (“SDTs”) to provide a “straw” or even rough illustrative estimate and seek responses to that information. Entities may be more likely to review and respond to a number or set of numbers than to produce one from scratch. Further, in light of Order 1000’s transition to competitive transmission, cost estimates related to transmission infrastructure may be increasingly considered to be competitively sensitive information. Many transmission owners or developers may not want to offer a sense of costs for public review in the NERC standard development process. Of course, this would require NERC or SDTs to expend resources on putting out a straw. However, given the importance of cost-effective analysis, the priority NERC and many other government officials place on the cost-effectiveness program, and emerging competition in transmission development, this may be a prudent and even necessary investment that would save consumers dollars over the longer-term. To be clear, this is a forward-looking suggestion and is not intended to respond to the specific questions posed here on TPL -001 - 4.

Regarding the question of cost in connection with TPL-001-4, for the reasons discussed above, imposing a new planning standard in New England for planned outages does not appear to be the most cost-effective approach to address reliability risks associated with planned maintenance outages. ISO-NE already engages in the conservative modeling of reliability needs, with an N-1-1 scenario reflected in the base case. Accordingly, the base case acts as a proxy for units that are unavailable, whether through planned or unplanned events. To remove further facilities for planned maintenance outages, which are already accounted for in existing protocols, would be the equivalent of an N-1-1-1 event. This change would have potentially significant cost implications for New England. The more cost-effective approach in New England is to allow for ISO-NE’s existing processes and procedures to plan for, and address, any reliability issues in connection with outages.

Likes 0

Dislikes 0

Response

Terry Bilke - 2

Answer

Document Name

Comment

Working around a maintenance coordination issue on a system not designed to handle the maintenance can increase the risk to reliability by having to rely on operating guides and workarounds. Increased costs also may occur due to required re-dispatch and/or shifting the maintenance to higher dispatch cost periods. Also, uncertainty of when maintenance can be scheduled and/or denial of scheduled maintenance can increase cost to asset owners that rely on contract personnel.

Likes 0

Dislikes 0

Response

David Jendras - 1,3,6

Answer

Document Name

Comment

Significant additional labor costs for working shorter-term outage data into contingency lists, and producing additional powerflow cases to analyze these events would be needed. Following contingency simulations, additional time for review of the simulation results would be needed. In rare instances, additional capital costs for corrective action plans might be needed.

Likes 0

Dislikes 0

Response

Oliver Burke - 1,5

Answer

Document Name

Comment

The capital costs for building out a system that can support outages in the few hours that long-term planning studies cover should be compared to the reductions in O&M in coordinating and scheduling outages.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

Document Name

Comment

Additional costs to consider include duplicative staff, duplicative equipment, additional computing time, and compliance enforcement costs related to performing additional annual planning assessments for TPL-001-4 which are already adequately and properly covered in seasonal, next-day, and current day studies. If daily PRC-005-2 outages must be evaluated, then the number of duplicate annual planning contingency studies with no additional reliability benefit is significant.

Likes 0

Dislikes 0

Response

Hien Ho - 1,3,4,5,6

Answer

Document Name

Comment

Costs include maintaining a database, modeling, and studying these planned outages. The details of these planned outages may not be available in Planning Horizon.

Likes 0

Dislikes 0

Response**John Pearson - 2 - NPCC****Answer****Document Name****Comment**

There is the direct cost of conducting a study of planned maintenance conditions under TPL-001-4 knowing that the study will take into account conditions that may not materialize in the Operation Planning horizon operations staff address in Real-time. That is why outage coordination as administered by ISO-NE for the last 10 years, and what will be required of other System Operators under IRO-017-1, is necessary.

Likes 0

Dislikes 0

Response**Robert Tallman - 3,5,6 - SERC, Group Name LG&E and KU Energy****Answer****Document Name****Comment**

Since a planned outage can be controlled or canceled, the only cost that exists is the cost of not doing the outage. If the operations planning studies are done enough in advance of the planned maintenance, there is no cost associated with the postponement or cancellation of the outage. If an unplanned outage occurs just before the planned outage causing the planned outage to be postponed or canceled, there would be a cost associated with the cancellation or postponement.

Likes 0

Dislikes 0

Response**Lauren Price - 1 - MRO,RF****Answer**

Document Name

Comment

Response: *Certainly, the cost of potential corrective action plans that would reduce or eliminate the risk of a large amount of firm load loss or firm transmission service interruption should be considered.*

Likes 0

Dislikes 0

Response

Scott Langston - 1,3,5

Answer

Document Name

Comment

Labor costs

Likes 0

Dislikes 0

Response

Karen Webb - 1,3,5

Answer

Document Name

Comment

Labor

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer

Document Name

Cost Effectiveness Pilot Unofficial Comment Form Final Comments_BEPC.docx

Comment

Additional costs to consider include duplicative staff, duplicative equipment, additional computing time, and compliance enforcement costs related to performing additional annual planning assessments for TPL-001-4 which are already adequately and properly covered in seasonal, next-day, and current day studies. If daily PRC-005-2 outages must be evaluated, then the number of duplicate annual planning contingency studies with no additional reliability benefit is significant. Additionally there may be system upgrades identified for these short duration outages that are not necessarily needed long term.

Likes 0

Dislikes 0

Response

Jennifer Losacco - 1 - FRCC

Answer

Document Name

Comment

Costs can be associated to additional system analysis. Adding planned outages less-than six months into TPL-001-4 will introduce more complexity to the study since a single case can no longer represent an entire season.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer

Document Name

Comment

Costs that should be considered include engineering hours to coordinate the inclusion of the planned maintenance outages into the system models, engineering hours to perform the additional studies, and potential capital funding required for corrective action plans to address issues that historically could have been mitigated through operational techniques.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer

Document Name**Comment**

Including planned maintenance outages less than six months in duration in studies during one or both seasonal off-peak periods will require entities to devote additional time to the compilation of the Planning Assessment required under TPL-001-4. Also, because planned maintenance outages of all lengths are already accounted for in the operations planning horizon, there is no potential reliability-related cost that follows from not including this as a requirement in TPL-001-4.

Likes 0

Dislikes 0

Response**Douglas Webb - 1,3,5,6 - SPP RE****Answer****Document Name****Comment**

Should planned maintenance outages less than six months be added to the TPL-001-4 Standard, the volume of required studies would dramatically increase with little benefit. To complete the increased volume of studies would require hiring additional engineers.

Likes 0

Dislikes 0

Response**Oshani Pathirane - 1,3 - NPCC****Answer****Document Name****Comment**

Hydro One Networks Inc. agrees with the IESO (Ontario) in that the additional cost associated will “likely be that of the human resource time required to include the outages in the planning assessment, which would be redundant with the same task (but not a replacement) in outage coordination and operations planning analyses which in general are conducted with more accurate system data thanks to the more predictive conditions at a closer time frame”.

Likes 0

Dislikes 0

Response

Shannon Mickens - 2 - SPP RE, Group Name SPP Standards Review Group

Answer

Document Name

Comment

Additional costs to consider include additional staffing, and Man Hours, costs to perform annual planning assessments for TPL-001-4 which are already adequately and properly covered in seasonal, next-day, and current day studies.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer

Document Name

Comment

We believe the addition would be duplicative of current short-term operational planning assessments. In order to maintain compliance with this proposal, registered entities would be required to hire additional staff to evaluate and maintain duplicative system models, as well as purchase additional analytical computing and storage resources.

Likes 0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA

Answer

Document Name

Comment

Engineering time is one cost. If modifications to the standard are structured to create new study cases, which at a minimum would result in one additional case, this will add potentially 15% to 20% to the cost of the existing Assessment and more with every additional case developed. If modifications to the standard are structured such that results are iterative (additional cases made after initial N-1-1 results are studied), Planning Assessments will take more time to complete. Another is the cost, either direct or unintended, of developing, documenting, and auditing an assessment with an administrative focus on achieving compliance with a standard rather than on analyzing and mitigating risks to BPS reliability. The standard drafting team should attempt to quantify these costs based on the specific changes being proposed to the standard.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer

Document Name

Comment

We believe the addition would be duplicative of current short-term operational planning assessments. In order to maintain compliance with this proposal, registered entities would be required to hire additional staff to evaluate and maintain duplicative system models, as well as purchase additional analytical computing and storage resources.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Document Name

Comment

Additional costs to consider include duplicative staff, duplicative equipment, additional computing time, and compliance enforcement costs related to performing additional annual planning assessments for TPL-001- 4 which are already adequately and properly covered in seasonal, next-day, and current day studies in the operations horizon.

Likes 0

Dislikes 0

Response

Ruida Shu - 1,2,3,4,5,6,7 - NPCC, Group Name RSC No Dominion, Con-Ed and NextEra

Answer

Document Name

Comment

There is the direct cost of conducting a study of planned maintenance conditions under TPL-001-4 knowing that the study will take into account conditions that may not materialize in the Operation Planning horizon operations staff address in Real-time. That is why outage coordination as

administered by ISO-NE for the last 10 years, and what will be required of other System Operators under IRO-017-1, is necessary.

Likes 0

Dislikes 0

Response

Angela Gaines - 1,3,5,6

Answer

Document Name

Comment

b. This is not relevant to the Planning Horizon, because these outages should not be considered in planning cases. These outages are considered in the Operations Horizon, and maintenance activities that pose an undue risk to the BES are postponed or other mitigations are developed. Construction/maintenance outages are not allowed to impact the BES.

Likes 0

Dislikes 0

Response

1c. If you identified one or more risks and identified a likelihood of “medium” or “high”, is there a more cost effective manner to reduce them rather than revising TPL-001-4 or is there an preferred approach to revising TPL-001-4 that takes into consideration cost effectiveness?

Please explain your response including descriptions of potential cost effective solutions and the associated benefits to reliability:

Angela Gaines - 1,3,5,6

Answer No

Document Name

Comment

No risks were identified for in the Planning Horizon, because these are mitigated in the Operations Horizon, and therefore the planning standard should not be revised.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer No

Document Name

Comment

We answered “no” based on the low likelihood of these risks occurring.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer No

Document Name

Comment

We answered “no” based on the low likelihood of these risks occurring.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer No

Document Name

Comment

N/A. Planned outages with durations less than six months should remain in the operating horizon.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer No

Document Name

Comment

There is no risk and no need to modify TPL-001-4 for this.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer No

Document Name

Comment

Reliability is one of the most important factors to the District. Cost has not been considered when planned outages are determined.

Likes 0

Dislikes 0

Response

Joe Tarantino - 1,3,4,5,6 - WECC

Answer No

Document Name

Comment

SMUD does not view the risk of not conducting studies on planned maintenance outages as a risk where those outages are less than 6-months.

Likes 0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPPA

Answer No

Document Name

Comment

Likes 0

Dislikes 0

Response

Shannon Mickens - 2 - SPP RE, Group Name SPP Standards Review Group

Answer No

Document Name

Comment

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer No

Document Name

Comment

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO**Answer** No**Document Name****Comment**

Likes 0

Dislikes 0

Response**Douglas Webb - 1,3,5,6 - SPP RE****Answer** Yes**Document Name****Comment**

Regardless of the potential risk level, the cost-effective alternative is to accept the daily system studies which are already completed under TOP-002 Standards and are currently designed to identify potential risk to the BPS.

Likes 0

Dislikes 0

Response**Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority****Answer** Yes**Document Name****Comment**

A more cost effective method to reduce the risks rather than requiring the study of planned maintenance outages of less than six months in duration under TPL-001-4 would be to revise TPL-001-4 to include coordination between transmission planners and operational planners to review the operational studies or to incorporate only significant planned maintenance outages into TPL-001-4 studies, similar to R3.4.1 and R4.4.1.

Likes 0

Dislikes 0

Response**Lauren Price - 1 - MRO,RF**

Answer	Yes
Document Name	
Comment	
<p>Response: <i>Our preference is for the obligation to evaluate planned outages for conditions when they would typically be taken should be part of the requirements for the assessment of “no load loss allowed” planning event contingencies. Otherwise, we suggest that it at least be added to the assessment of extreme event contingencies to evaluate planned outages that are expected to produce more severe System impacts and learn the possible extent of those impacts.</i></p>	
Likes	0
Dislikes	0
Response	
Terry Bilke - 2	
Answer	Yes
Document Name	
Comment	
<p>If the TPL-001-4 standard were modified simply by a rule change for processing P6 contingencies during off-peak cases (Load shed would not be allowed as a mitigation measure), simulation of a facility being removed for maintenance and the resulting system satisfying the n-1 reliability criteria could be assessed for any time in the Planning Horizon. So removing the 6 month duration requirement in the current standard (which requires a special simulation and cost to complete) and replacing it with the above modification would be effective and require virtually no additional cost.</p>	
Likes	0
Dislikes	0
Response	
Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
<p>Known planned outages less than six months should be evaluated by Operating personnel in the operating horizon. This allows for more accurate prediction/modeling of expected system conditions, actively engages them in analysis and approval of the outage plan, equips them to evaluate changes in their system up to the very day the outage occurs, and further reduces the possibility that unproductive engineering labor would have been expended.</p>	
Likes	0
Dislikes	0

Response	
Leonard Kula - 2	
Answer	Yes
Document Name	
Comment	
An alternative is to revise the definition of Operational Planning Analysis to change the next day operations part to next day to up to one year.	
Likes	0
Dislikes	0
Response	
Rachel Coyne - 10	
Answer	Yes
Document Name	
Comment	
If the RC requires the TO/GO to provide rolling 12 month (or longer) outage plans, the RC can evaluate the outages, identify issues, and coordinate the outages in order to avoid scheduling conflicts. The 12 month rolling outage plan is a requirement currently in the Interconnection but it is not necessarily applied to the planning horizon.	
Likes	0
Dislikes	0
Response	
Michelle Amarantos - 1,3,5,6	
Answer	
Document Name	
Comment	
N/A	
Likes	0
Dislikes	0

Response

Karen Webb - 1,3,5

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

John Pearson - 2 - NPCC

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Jason Marshall - NA - Not Applicable - NA - Not Applicable

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

Not Applicable.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

There is no risk and no need to modify TPL-001-4 for this.

Likes 0

Dislikes 0

Response

2. What, if any, risk to the reliable operation of the BPS, as defined under Section 215 (see question 1 above) is there if an entity does not perform stability analyses for the P0, P1 and P2 categories in TPL-001-4 that consider the possible unavailability of long lead-time equipment?

Please explain your response:

Bob Case - 1,3,5,6 - WECC

Answer

Document Name

Comment

Another consideration would be the effort required to complete stability studies for all outages in compliance with the TPL standard, which would seem to set a very high bar.

Black Hills performed a lot of additional work in 2015. The risk associated with long lead time equipment is the P6 (N-1-1) loss of two transformers. That is already studied outside of the long lead time equipment requirement.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

There is no risk to the reliable operation of the BPS if an entity does not perform stability analyses for the P0, P1 and P2 categories that consider the possible unavailability of long lead-time equipment. The stability analysis for P3 –P7 categories should already include the study of all loss of long lead-time equipment scenarios.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

There is very little risk if stability analysis is not performed for the unavailability of long lead time equipment. If there is an outage of long lead time equipment, system operations will operate around any problem that might be indicated by their analysis. From a stability standpoint this would most likely be a small limitation on the amount of generation at a plant near the outaged element.

Likes 0

Dislikes 0

Response

Thomas Foltz - 3,5

Answer

Document Name

Comment

AEP considers the risk to be minimal. The system is operated so that single contingencies will not cause SOL or IROL violations. Whether the system operating limitations are of stability or steady-state nature is not relevant and the planning stability analysis does not need to enter into the consideration.

General comments regarding the Cost Effectiveness Pilot itself:

We believe industry needs more than 30 days to provide thoughtful, meaningful feedback regarding cost effectiveness and perceived risk. We recommend that industry be provided 45 days to respond to future Cost Effectiveness comment periods.

Should a NERC project be commissioned as part of this effort, AEP recommends that comments provided during Cost Effectiveness Pilot comment periods be archived at the project's unique web page. This approach should be used for all projects for which Cost Effectiveness comment periods are held, and would be more appropriate than archiving responses on a variety of topics at a single "[Cost Effectiveness Pilot web page](#)".

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer

Document Name

Comment

There is low risk to the BPS if BPA does not perform this stability analyses. Studies are already done as part of the BPA spare equipment strategy. BPA does have a stock of spare long lead-time equipment needed to keep a reliable transmission system as well as a stock of parts for repairs. The strategy replenishes this stock as needed.

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

If an entity does not perform stability analyses, IROLs may not be identified. Additional impacts including SOL exceedances, voltage stability, dynamic stability, and transfer capability may not be realized without proper study parameters.

In depth stability analysis occurs in the planning horizon. If the unavailability of long-lead time equipment is not considered during planning horizon analysis, potential instability in the operating horizon due to long-lead time equipment outages may not be identified.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

CenterPoint Energy does not believe there is any risk because the impact of the unavailability of long lead time equipment for TPL-001-4 Category P0, P1 and most P2 conditions is already captured as part of the Category P6 stability analysis.

Likes 0

Dislikes 0

Response

Nick Vtyurin - 1,3,5,6 - MRO

Answer

Document Name	
Comment	
It comes down to determining if multiple outages of long lead-time equipment should be considered. Assuming more than one piece of equipment is out is unreasonable. Contingency P6 already covers overlapping singles.	
Likes 0	
Dislikes 0	
Response	
Emily Rousseau - 1,2,3,4,5,6 - MRO	
Answer	
Document Name	
Comment	
<p>Paragraph 89 of Order No. 786 http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/E-2 Transmission Planning Rel. Strd.pdf to consider P0, P1, and P2 stability analyses for long lead-time equipment with outages of more than six months is reasonable if the scope is limited. There are concerns that a P2 stability analysis with an assumed third contingency base case long-term outage can easily go beyond typical electric grid designs resulting in additional transmission construction.</p> <p>Entities already cover the P0 and possible the P1 conditions as part of their normal stability analyses. A P0 no outage condition with an assumed base six-month element outage becomes a P1 outage condition (an N-1 contingency). Similarly a P1 condition with an assumed base six-month element outage becomes a P2 outage condition (an N-2 contingency). However, a P2 condition with an assumed base six-month element outage is an atypical 3rd contingency or N-3 contingency. Unless limited, this could have significant impacts in terms of staff, time, and ultimately electric grid reinforcements.</p> <p>The risks posed by not performing P0, P1, and P2 stability analyses is specific in nature depending upon the type of equipment and the impact of that equipment. Long lead-time equipment could include common Bulk Electric System (BES) equipment with no significant thermal, voltage, and stability impacts. Similarly the equipment could be specialized and be part of a critical BES Facility such as an Interconnected Reliability Operating Limit (IROL).</p> <p>A typical reactor or transformer may take more than 12 months to obtain and have almost no thermal, voltage, or stability impacts if associated with a BES generator that almost never runs. If the equipment isn't typical such as a series capacitor bank used to improve system stability on an IROL, the risks and impact could be high.</p>	
Likes 0	
Dislikes 0	
Response	
Joe Tarantino - 1,3,4,5,6 - WECC	
Answer	
Document Name	

Comment

Regarding the spare equipment strategy, the pertinent issue is to evaluate the outage impacts of long lead-time facilities, regardless of limitation, thermal or stability.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer

Document Name

Comment

The District performs stability analyses for all of the P0, P1 and P2 categories in TPL-001-4 annually. Stability analysis in the annual system assessment indicates that all single outages result in a stable response.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer

Document Name

Comment

There is very little risk if stability analysis is not performed for the unavailability of long lead time equipment. If there is an outage of long lead time equipment, system operations will operate around any problem that might be indicated by their analysis. From a stability standpoint this would most likely be a small limitation on the amount of generation at a plant near the outaged element.

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

Minimal risk. ERCOT already requires the study of unavailability of an autotransformer along with a P0, P1 and P7 event. This would only require an additional study of an autotransformer unavailable with a P2 event.

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer

Document Name

Comment

There might be performance issues that remain uncovered unless a stability assessment is performed on time, in particular if such assessment calls for significant de-rates or implementation of a RAS.

The operation planning study should include stability evaluation of a system with the maintenance outage of a facility (particularly large one).

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

Document Name

Comment

The risk of not performing P0 and P1 category analysis is minimal because P3 and P6 category analysis covers situations where a piece of equipment is already out of service followed by a second contingency. There is some minimal risk in not performing P2 analysis, but it is partially mitigated by P4 and P5 category analyses that already cover a more severe condition.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer

Document Name

Comment

Medium risk. Stability analysis is already required for various N-1 and N-1-1 contingencies that include loss of the equipment. The inclusion of stability analysis on contingency combinations with a significantly lower probability of occurrence could potentially identify new exposures.

Likes 0

Dislikes 0

Response

Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy

Answer

Document Name

Comment

Duke Energy agrees that there is some risk to the BPS if P0, P1, or P2 stability analyses are not performed.

Likes 0

Dislikes 0

Response

Jason Marshall - NA - Not Applicable - NA - Not Applicable

Answer

Document Name

Comment

NESCOE may submit comments on this aspect of TPL-001-4 at a later time.

Likes 0

Dislikes 0

Response

Terry Bllke - 2

Answer	
Document Name	
Comment	
Initially, the risk is low after an occurrence. The longer any equipment is out of service for unplanned outages, the greater the potential that subsequent contingencies can cause the BPS to operate at higher risk.	
Likes 0	
Dislikes 0	
Response	
David Jendras - 1,3,6	
Answer	
Document Name	
Comment	
The unavailability of long lead-time equipment would not be likely to cause issues with transient stability for which planners aren't already aware.	
Likes 0	
Dislikes 0	
Response	
Oliver Burke - 1,5	
Answer	
Document Name	
Comment	
There are risks to reliability if stability analyses are not performed for single contingency events that assess system performance during a long unplanned outage. For example, a generator step-up transformer or critical autotransformer.	
Likes 0	
Dislikes 0	
Response	

larry brusseau - 1

Answer

Document Name

Comment

Paragraph 89 of Order No. 786[1] to consider P0, P1, and P2 stability analyses for long lead-time equipment with outages of more than six months is reasonable if the scope is limited. There are concerns that a P2 stability analysis with an assumed third contingency base case long-term outage can easily go beyond typical electric grid designs resulting in additional transmission construction.

Entities already cover the P0 and possible the P1 conditions as part of their normal stability analyses. A P0 no outage condition with an assumed base six-month element outage becomes a P1 outage condition (an N-1 contingency). Similarly a P1 condition with an assumed base six-month element outage becomes a P2 outage condition (an N-2 contingency). However, a P2 condition with an assumed base six-month element outage is an atypical 3rd contingency or N-3 contingency. Unless limited, this could have significant impacts in terms of staff, time, and ultimately electric grid reinforcements.

The risks posed by not performing P0, P1, and P2 stability analyses is specific in nature depending upon the type of equipment and the impact of that equipment. Long lead-time equipment could include common Bulk Electric System (BES) equipment with no significant thermal, voltage, and stability impacts. Similarly the equipment could be specialized and be part of a critical BES Facility such as an Interconnected Reliability Operating Limit (IROL).

A typical reactor or transformer may take more than 12 months to obtain and have almost no thermal, voltage, or stability impacts if associated with a BES generator that almost never runs. If the equipment isn't typical such as a series capacitor bank used to improve system stability on an IROL, the risks and impact could be high.

Likes 0

Dislikes 0

Response

Hien Ho - 1,3,4,5,6

Answer

Document Name

Comment

Increase loss of firm load.

Likes 0

Dislikes 0

Response

John Pearson - 2 - NPCC**Answer****Document Name****Comment**

Considering the requirements to evaluate P3 through P7, which simulate multiple contingencies, there is little reliability risk addressed through evaluation of P0, P1 and P2 in stability analyses while assuming that a long lead-time piece of equipment is unavailable. In fact, there should be no requirement to look at P0, P1, or P2 when considering the possible unavailability of long lead-time equipment in steady state analyses for the same reason.

Likes 0

Dislikes 0

Response**Amy Casuscelli - 1,3,5,6 - MRO,WECC,SPP RE****Answer****Document Name****Comment**

Xcel Energy feels that there is minimal to no risk involved to the BES by not performing stability analyses for P0, P1, P2 categories that consider the possible unavailability of long lead time equipment. We note that TPL-001-4 requires that system must remain stable due to the tripping of more than one facility in these stability analyses. Thus, system stability would be maintained even during the unavailability of spare equipment, thus minimizing if not eliminating the risk to reliable operation of the BPS.

Likes 0

Dislikes 0

Response**Lauren Price - 1 - MRO,RF****Answer****Document Name****Comment**

Response: *The likelihood that the dynamic system response to P0, P1 and P2 category contingencies would have a significant impact on BES reliability due to the unavailability of long lead-time equipment is low.*

Please explain your response: *The unavailability of long lead-time equipment can only lead to dynamic BES system angular or voltage instability*

when the equipment is in a crucial location near an area of weak angular or voltage stability.

Likes 0

Dislikes 0

Response

Scott Langston - 1,3,5

Answer

Document Name

Comment

There is a risk that a major outage could create a stability issue that is not caught in seasonal operations studies that do not look at stability.

Likes 0

Dislikes 0

Response

Karen Webb - 1,3,5

Answer

Document Name

Comment

There is a risk that a major outage could create a stability issue that is not caught in seasonal operations studies that do not look at stability.

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer

Document Name

Comment

Paragraph 89 of Order No. 786 to consider P0, P1, and P2 stability analyses for long lead-time equipment with outages of more than six months is reasonable if the scope is limited. There are concerns that a P2 stability analysis with an assumed third contingency base case long-term outage can easily go beyond typical electric grid designs resulting in additional transmission construction.

Entities always cover the P0 and possible the P1 conditions as part of their normal stability analyses. A P0 no outage condition with an assumed base six-month element outage becomes a P1 outage condition (an N-1 contingency). Similarly a P1 condition with an assumed base six-month element outage becomes a P2 outage condition (an N-2 contingency). However, a P2 condition with an assumed base six-month element outage is an atypical 3rd contingency or N-3 contingency. Unless limited, this could have significant impacts in terms of staff, time, and ultimately electric grid reinforcements.

The risks posed by not performing P0, P1, and P2 stability analyses is specific in nature depending upon the type of equipment and the impact of that equipment. Long lead-time equipment could include common Bulk Electric System (BES) equipment with no significant thermal, voltage, and stability impacts. Similarly the equipment could be specialized and be part of a critical BES Facility such as an Interconnected Reliability Operating Limit (IROL).

A typical reactor or transformer may take more than 12 months to obtain and have almost no thermal, voltage, or stability impacts if associated with a BES generator that almost never runs. If the equipment isn't typical such as a series capacitor bank used to improve system stability on an IROL, the risks and impact could be high.

Likes 0

Dislikes 0

Response

Jennifer Losacco - 1 - FRCC

Answer

Document Name

Comment

If an entity does not perform a stability analysis for P0, P1, and P2 that considers the unavailability of long lead-time equipment, the risk to the reliable operations of the BPS would be low. Equipment with long lead-times are typically cables and transformers. Excluding autotransformers on the EHV network, long lead-time equipment generally serves local areas; therefore, their unavailability will affect entities' local service area and not the Bulk Power System.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer

Document Name

Comment

If the unavailability of long lead-time equipment is not considered in stability analysis for P0, P1 and P2 events, there is a risk of detrimental impacts to BPS reliability. Generally, the unavailability of long lead-time equipment studied under P0 will be bounded by the existing P1 studies. The unavailability of long lead-time equipment studied under P1 and P2 may not be considered completely bounded by any existing studies. However, given the scope of contingency events already considered, it would be unlikely that critical events would be missed. Therefore, TVA sees a low risk to the reliable

operation of the BPS if the unavailability of long lead-time equipment is not considered in stability analysis for P0, P1 and P2 events.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer

Document Name

Comment

Some risk to the reliable operation of the BPS could exist if an entity were to perform an analysis of only P0, P1, and P2 categories without also considering the additional contingency of the unavailability of long-lead time equipment. However, TPL-001-4 already requires entities to evaluate P3 through P7 categories, which produce the same contingency results that studying P0, P1, and P2 categories would produce assuming unavailability of long-lead time equipment. For this reason, it is unnecessary and inappropriate to require the proposed analysis.

* please note IESO does not join the SRC answer to Question #2

Likes 0

Dislikes 0

Response

Douglas Webb - 1,3,5,6 - SPP RE

Answer

Document Name

Comment

The risk is minimal to the BPS if an entity does not perform stability analyses for the P0, P1 and P2 categories identified in TPL-001-4. Operational assessments are already performed and cover these conditions and identify potential risk to the BPS.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer

Document Name	
Comment	
<p>The reference to long lead-time equipment, in this context, is vague and could reference any system element impacted by raw material shortages and labor strikes experienced by manufacturers and supply distributors. We therefore assume the question is directed towards specific BES Elements, such as high-voltage substation transformers, which may have long procurement times more than 12 months. The concerns of instability, uncontrolled separation, and cascading failures of these Facilities are likely caused by an exceedance of an Interconnected Reliability Operating Limits, and usually under conditions representative of a P2 category study. Hence, we believe a risk to the reliable operation of the BPS could exist, and that entities should conduct stability analyses regarding these Facilities when they are associated with Interconnected Reliability Operating Limits.</p>	
Likes	0
Dislikes	0
Response	
Jason Snodgrass - 1	
Answer	
Document Name	
Comment	
<p>Not performing stability analyses for P0, P1, and P2 events that consider the possible unavailability of long lead-time equipment could lead to not identifying potential system constraints that could lead to system instability, cascading outages, etc.</p>	
Likes	0
Dislikes	0
Response	
Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA	
Answer	
Document Name	
Comment	
<p>FMPA believes there are certain scenarios involving the unavailability of major long lead-time Transmission equipment that could pose a risk to the BPS and warrant special attention to System stability. However, the instance of such events that cause angular of voltage stability impacts beyond those observed by traditional steady state studies is much more infrequent, and adding events to Stability analysis without proper engineering judgment can add extremely significant wasted time. The PC and TP should have the leeway to determine which scenarios should be included in their assessments, based on events that are expected to produce more severe System impacts.</p>	
Likes	0
Dislikes	0

Response

Bertha Ellen Watkins - 1

Answer

Document Name

Comment

The reference to long lead-time equipment, in this context, is vague and could reference any system element impacted by raw material shortages and labor strikes experienced by manufacturers and supply distributors. We therefore assume the question is directed towards specific BES Elements, such as high-voltage substation transformers, which may have long procurement times more than 12 months. The concerns of instability, uncontrolled separation, and cascading failures of these Facilities are likely caused by an exceedance of an Interconnected Reliability Operating Limits, and usually under conditions representative of a P2 category study. Hence, we believe a risk to the reliable operation of the BPS could exist, and that entities should conduct stability analyses regarding these Facilities when they are associated with Interconnected Reliability Operating Limits.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Document Name

Comment

There is low risk to the BPS if AZPS does not perform this stability analyses. AZPS has a robust spare equipment strategy. Moreover, if an entity does not perform stability analyses for the P0, P1 and P2 categories in TPL-001-4 that consider the possible unavailability of long lead-time equipment there is low risk as these contingencies are likely addressed through stability analysis for categories P3-P7, such as the two overlapping single multiple contingencies studied in P6.

Likes 0

Dislikes 0

Response

Angela Gaines - 1,3,5,6

Answer

Document Name

Comment

This would require creating a new stability case for each long lead time piece of equipment, and running a specific set of stability contingencies for each

of these cases. The workload impact would increase for PGE by more than 20x. We, and most of the industry, do not have the computing power or the data storage capability required to perform this analysis. This is not just running stability for P0, P1, and P2 contingencies; this is essentially running stability for P6 contingencies.

Likes 0

Dislikes 0

Response

2a. If there are risks to the reliable operation of the BPS, are the likelihood of the occurrence of these risks low, medium or high?

Please explain your response:

Jeremy Voll - 1,3,5,6

Answer

Document Name

Comment

See the answer for item 2 above.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

Document Name

Comment

See the answer for item 2 above

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO

Answer

Document Name

Comment

See the answer for item 2 above.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

Not Applicable.

Likes 0

Dislikes 0

Response

Leonard Kula - 2

Answer

Document Name

Comment

The IESO believes that responsible entities need to ensure acceptable steady state and stability performance of the BPS for the events that the system is designed and operated to withstand, which include the P0, P1 and P2 categories in TPL-001-4, when assessing the conditions that the system is expected to experience during the possible unavailability of the long lead time equipment. Reliable operation may be at risk if stability analyses for these events are not performed for the protracted conditions where the spare equipment is unavailable.

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

The likelihood of the risks described in #2 is Low to High. The issue is each case may present a different level of risk to the BPS. Without studying it, the risk is unknown until the operations horizon.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

No risks were identified.

The stability analysis for P3 –P7 categories should already include the study of all loss of long lead-time equipment scenarios.

Likes 0

Dislikes 0

Response

Angela Gaines - 1,3,5,6

Answer

Low

Document Name

Comment

There is a chance that if a long lead time piece of equipment is out of service, that there is a stability risk to the system that is unknown, because we don't do P6 stability studies.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Low

Document Name

Comment

See response to question 2.

Likes 0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMFA

Answer Low

Document Name

Comment

The unavailability of long lead-time equipment with the potential to cause impacts to the BPS are low probability, infrequent events.

Likes 0

Dislikes 0

Response

Jason Snodgrass - 1

Answer Low

Document Name

Comment

The risks would be comensurate with the number of non-spare long lead time items that are out of service. In GTCs case, this is low because we maintain a shared spare components database.

Likes 0

Dislikes 0

Response

Douglas Webb - 1,3,5,6 - SPP RE

Answer Low

Document Name

Comment

Operational assessments are already performed and designed to cover these conditions and identify potential risk to the BPS.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer Low

Document Name

Comment

Planning analyses already effectively consider the effect of an outage of equipment with a long lead-time for replacement plus a P0, P1, or P2 category event as part of required analyses of P3 through P7 categories. Thus there is no incremental risk to the reliable operation of the BPS in the absence of a requirement to conduct the proposed analysis.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer Low

Document Name

Comment

Given the scope of contingency events already considered, it would be unlikely that critical events would be missed. Events which would tend to produce the more severe impacts on system stability are already given considerable attention.

Likes 0

Dislikes 0

Response

Lauren Price - 1 - MRO,RF

Answer Low

Document Name

Comment

Response: *The overall likelihood that the unavailability of long lead-time equipment would have significant impact on BES reliability due to dynamic system response to P0, P1 and P2 category contingencies may be low.*

Please explain your response: *The likelihood that the unavailability of long lead-time equipment would have a stability impact is low and the likelihood that a stability impact BES reliability due to P0, P1 and P2 category contingencies would be significant is also low.*

Likes 0

Dislikes 0

Response	
Robert Tallman - 3,5,6 - SERC, Group Name LG&E and KU Energy	
Answer	Low
Document Name	
Comment	
<p>Since the stability studies are performed for P4 through P7 events, outage of long lead equipment is considered and stability studies are performed (P6), where the prior outage of a long lead item is included in the P6 evaluation. If there is a risk to the BPS, corrective action plans are identified as required by the existing TPL-001-4 standard.</p>	
Likes	0
Dislikes	0
Response	
Amy Casuscelli - 1,3,5,6 - MRO,WECC,SPP RE	
Answer	Low
Document Name	
Comment	
<p>The stability risk due to the unavailability of long lead time equipment for P0, P1, P2 categories is inherently addressed by the stability analysis performed for the remaining categories P3-P7 which consists of the stability analysis of multiple contingencies.</p>	
Likes	0
Dislikes	0
Response	
John Pearson - 2 - NPCC	
Answer	Low
Document Name	
Comment	
<p>There is very limited risk. The likelihood of the occurrence of such limited risk is extremely small.</p>	
Likes	0
Dislikes	0

Response

Hien Ho - 1,3,4,5,6

Answer Low

Document Name

Comment

Most of these contingencies are studies under P6 (Two overlapping singles) except for the combinations of a transmission element and a bus section or a breaker fault. The risk of these failures is low. In the event such failure occurs, seasonal and daily studies should identify and mitigate any stability issues. In addition to spare equipment, there are a number of other mitigation strategies that can be deployed in less than 12 months such as relay changes, RAS installation, or generation redispatch. Modeling these types of mitigation for stability analysis takes significantly more time than the modeling required for steady state analysis.

Likes 0

Dislikes 0

Response

David Jendras - 1,3,6

Answer Low

Document Name

Comment

As above, given the scope of contingency events already considered in TPL-001-4, it would seem unlikely that critical events would be missed. Contingency events which would tend to have the more severe impacts on transient stability issues, typically related to generation outlet facilities, are already given significant attention in analysis work related to TPL-001-4.

Likes 0

Dislikes 0

Response

Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy

Answer Low

Document Name

Comment

The likelihood of occurrence of Low is predicated on the belief that there are not a lot of IROLs on the system, however, an entity will most likely not know the answer to this until the actual study has been performed.

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

Low

Document Name

Comment

As mentioned above, the fact that N-1-1 conditions and more severe contingencies are covered in categories P3 through P6 means that the risk of not performing P0-P2 stability analyses considering unavailability of long lead time equipment is minimal.

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer

Low

Document Name

Comment

This is hard to quantify as each case could represent a different level of risk. Performing a study that includes both steady-state and dynamic of the system will identify possible risks which can be ranked after this analysis.

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Low

Document Name

Comment

TPL-001-4 does not provide clear performance metrics during the unavailability of long-lead time equipment, therefore the impact is minimal. Because it is unclear, we believe it is left up to the TSP to determine risk of the event and whether it should be mitigated.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer Low

Document Name

Comment

As above, given the scope of contingency events already considered in TPL-001-4, it would seem unlikely that critical events would be missed. Contingency events which would tend to have the more severe impacts on transient stability issues, typically related to generation outlet facilities, are already given significant attention in analysis work related to TPL-001-4.

Also as explained in Section 2 above.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer Low

Document Name

Comment

The District performs stability analyses for all of the P0, P1 and P2 categories in TPL-001-4 annually. Stability analysis in the annual system assessment indicates that all single outages result in a stable response.

Likes 0

Dislikes 0

Response

Nick Vtyurin - 1,3,5,6 - MRO

Answer Low

Document Name

Comment

None. Long lead-time equipment tends to be transformers. If a BES transformer is out of service, the next worst outage is typically loss of another parallel transformer. This contingency is already considered as a P6 event. Moving the transformer outage to P0, P1 and P2, for example, is burdensome on the planner and doesn't improve reliability.

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer

Low

Document Name

Comment

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Low

Document Name

Comment

Explained above.

Likes 0

Dislikes 0

Response

Bob Case - 1,3,5,6 - WECC

Answer

Low

Document Name

Comment

Again, recommend separating the operational horizon from the planning horizon.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer High

Document Name

Comment

Although preventive measures, such as shared transformer inventories, have been implemented to address the availability concern of high-voltage substation transformers, these measure may not account for every possible catastrophe.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer High

Document Name

Comment

Although preventive measures, such as shared transformer inventories, have been implemented to address the availability concern of high-voltage substation transformers, these measure may not account for every possible catastrophe.

Likes 0

Dislikes 0

Response

Karen Webb - 1,3,5

Answer Medium

Document Name

Comment

Medium, because the issue is important, but would most likely be looked at for stability by most utilities if thermal or Low voltage issues in outage studies showed reason for concern.

Likes 0

Dislikes 0

Response

Scott Langston - 1,3,5

Answer Medium

Document Name

Comment

Medium, because the issue is important, but would most likely be looked at for stability by most utilities if thermal or Low voltage issues in outage studies showed reason for concern.

Likes 0

Dislikes 0

Response

Oliver Burke - 1,5

Answer Medium

Document Name

Comment

Contingency events studied that include multiple facilities out simultaneously should address high risk events.

Likes 0

Dislikes 0

Response

Terry Bilke - 2

Answer Medium

Document Name

Comment

Planning analyses already consider the effect of an outage of equipment with a long lead-time for replacement plus a P0, P1, or P2 category event as part of required analyses of P3- P7 categories. Thus there is no incremental risk to the reliable operation of the BPS in the absence of a requirement to

conduct the proposed analysis.	
Likes 0	
Dislikes 0	
Response	
Sandra Shaffer - 6	
Answer	Medium
Document Name	
Comment	
<p>Low to Medium risk of occurrence, depending on the equipment being evaluated.</p> <p>Stability analysis of equipment with a higher probability of complete failure (transformers, circuit breakers) in the absence of spare inventory, may identify practical system risks. However, stability analysis on equipment with significantly lower probabilities of complete failure (series and shunt capacitors, series and shunt reactors, dynamic reactive support), for which maintaining a spare inventory is impractical, may unnecessarily identify deficiencies that have an exceptionally low risk of occurrence.</p>	
Likes 0	
Dislikes 0	
Response	

2b. What costs should be considered when evaluating these risks?

Please explain your response:

Bob Case - 1,3,5,6 - WECC

Answer

Document Name

Comment

Additional engineering resource would be required.

Likes 0

Dislikes 0

Response

Diana McMahon - 1,3,5,6 - WECC

Answer

Document Name

Comment

The cost of duplicative study work.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

The cost of performing the additional stability analysis.

Likes 0

Dislikes 0

Response

Justin Mosiman - 1,3,5,6 - WECC

Answer

Document Name

Comment

Costs can range from the need for additional studies or a corrective action plan (low costs) to the need to purchase additional spare equipment (signification costs).

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

Planning departments may have to adjust processes to perform stability studies that require consideration of long lead-time equipment.

Likes 0

Dislikes 0

Response

Leonard Kula - 2

Answer

Document Name

Comment

The cost associated with the risks could range from local instability or unsupplied energy to potential cascading to the interconnected system, depending on the area for which stability analyses are not performed.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE**Answer****Document Name****Comment**

Costs to be considered include the additional labor (man hours, number of FTEs, out-sourcing) to perform the additional assessments. Licensing costs of modeling tools may also increase if additional FTEs are added.

Likes 0

Dislikes 0

Response**Nick Vtyurin - 1,3,5,6 - MRO****Answer****Document Name****Comment**

The study cost burden should be considered. The entity's spare equipment strategy should have considered the costs, benefits and risks. R2.1.5 is unclear whether the System adjustments identified in P6 are transferable to P0, P1 and P2. Additional System adjustments may be required, such as curtailment of Firm transmission service for the duration of the outage. Note 9 or R2.1.5 could use some clarity. The provision of transformer spares to improve the availability of Firm transmission service should be an economic choice for the Firm transmission service customer rather than a mandatory reliability requirement.

Likes 0

Dislikes 0

Response**Emily Rousseau - 1,2,3,4,5,6 - MRO****Answer****Document Name****Comment**

See the answer for item 2 above.

Likes 0

Dislikes 0

Response

Yvonne McMackin - 1,4,5

Answer

Document Name

Comment

Reliability is one of the most important factors to the District. Impacts on the overall reliability of the BES are not allowed. Cost has not been considered when planned outages are determined.

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer

Document Name

Comment

If such analyses were to be considered, additional labor costs would be associated with producing dynamic models and performing additional transient stability simulations, and the associated need to review the simulation results.

Additional costs that should be considered include potential capital funding required for corrective action plans as a result of the new requirement.

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

The cost of performing an additional study of an autotransformer unavailable along with a P2 is minimal for our system.

Likes 0

Dislikes 0

Response

Laura Nelson - 1

Answer

Document Name

Comment

Both costs associated w/ the additional study work being called for under the conditions described in 2 above and costs related to the impact on the system resulting from the exposure to the non-studied stability performance.

This latter one is hard to determine without performing the actual studies.

Likes 0

Dislikes 0

Response

Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer

Document Name

Comment

As mentioned above, the fact that N-1-1 conditions and more severe contingencies are covered in categories P3 through P6 means that the risk of not performing P0-P2 stability analyses considering unavailability of long lead time equipment is minimal.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer

Document Name

Comment

Administrative costs including transmission planning staff. There is a limited supply of trained professionals in North America capable of performing these stability studies. Locating and training additional transmission planners carries a high cost burden. Spare inventory for reactive devices with a low probability of failure would create a significant cost burden on utility ratepayers nationwide. Many of these reactive support devices are custom designed and a complete spare would have a high cost for a minimal system reliability benefit.

Likes 0

Dislikes 0

Response

Terry Bllike - 2

Answer

Document Name

Comment

Adding a requirement to TPL-001-4 for entities to perform a stability analysis for P0, P1, and P2 categories that considers the possible unavailability of long-lead time equipment would require PCs to devote additional resources to the expanded study requirements. Further as explained above, planning studies already consider the effects of such losses.

Likes 0

Dislikes 0

Response

David Jendras - 1,3,6

Answer

Document Name

Comment

If such analyses were to be considered, additional labor costs would be associated with producing dynamic models and performing additional transient stability simulations, and the associated need to review the simulation results.

Likes 0

Dislikes 0

Response

Oliver Burke - 1,5

Answer

Document Name

Comment

The cost to keep on hand spare equipment that reduces the lead time to just installation time.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

Document Name

Comment

Additional costs would include time and staff required to perform more stability studies.

Likes 0

Dislikes 0

Response

Hien Ho - 1,3,4,5,6

Answer

Document Name

Comment

Costs include study cost and maintaining a spare equipment strategy.

Likes 0

Dislikes 0

Response

Robert Tallman - 3,5,6 - SERC, Group Name LG&E and KU Energy

Answer

Document Name

Comment

When evaluating the P6 event where the prior outage is a long lead item, a corrective action plan must be identified. No cost should be considered since the corrective action plan will mitigate the risk.

Likes 0

Dislikes 0

Response

Lauren Price - 1 - MRO,RF

Answer

Document Name

Comment

Response: *Certainly, the cost of potential corrective action plans that would resolve the performance deficiencies should be considered. In addition, the potential cost of performing stability analysis on long lead-time equipment that are likely to be unnecessary should be considered.*

Likes 0

Dislikes 0

Response

Scott Langston - 1,3,5

Answer

Document Name

Comment

Labor costs

Likes 0

Dislikes 0

Response

Karen Webb - 1,3,5

Answer

Document Name

Comment

Labor

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer

Document Name

Comment

Additional costs would include time and staff required to perform more stability studies.

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer

Document Name

Comment

Costs that should be considered include engineering hours to perform the additional studies as well as potential capital funding required for corrective action plans as a result of the new requirement.

Likes 0

Dislikes 0

Response

Elizabeth Axson - 2, Group Name IRC Standards Review Committee

Answer

Document Name

Comment

Adding a requirement to TPL-001-4 for entities to perform a stability analysis for P0, P1, and P2 categories that considers the possible unavailability of long-lead time equipment would require PCs to devote additional resources to the expanded study requirements.

While costs of reliability impacts should generally be considered in evaluating standards, in this case, there is no reliability impact (or associated cost) because planning studies already consider the effects of such losses.

Likes 0

Dislikes 0

Response

Douglas Webb - 1,3,5,6 - SPP RE

Answer

Document Name

Comment

Should stability analyses for the P0, P1 and P2 categories that consider the possible unavailability of long lead-time equipment be added to the TPL-001-4 Standard, the volume of required studies would dramatically increase with little benefit. To complete the increased volume of studies would require hiring additional engineers.

Likes 0

Dislikes 0

Response

Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer

Document Name

Comment

We believe registered entities will incur additional costs to include BES Facilities with long procurement times in their stability analyses. These costs will include additional staff to identify and maintain applicable facilities, but opportunity costs associated with shifting existing staff away from other reliability studies.

Likes 0

Dislikes 0

Response

Jason Snodgrass - 1

Answer

Document Name

Comment

Costs for maintaining spare equipment and/or implementing projects to mitigate identified problems via the stability analysis. If you already have a spare equipment pool for steady state issues, there should be no additional costs.

Likes 0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA

Answer

Document Name

Comment

Engineering time is one cost. If PC and TP staff are not afforded appropriate leeway to select events that truly have a stability impact, the risk is a substantial amount of time spent creating cases, running simulations, and analyzing the results (plots, text files, etc). Another is the cost of implementing Corrective Action Plans for low probability, infrequent events. The standard drafting team should attempt to quantify these costs based on the specific changes being proposed to the standard.

Likes 0

Dislikes 0

Response

Bertha Ellen Watkins - 1

Answer

Document Name

Comment

We believe registered entities will incur additional costs to include BES Facilities with long procurement times in their stability analyses. These costs will include additional staff to identify and maintain applicable facilities, but opportunity costs associated with shifting existing staff away from other reliability studies.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Document Name

Comment

This suggests not having a spare equipment strategy and planning to run the system in a post N-1 condition for an extended period for an unknown outage. This could be interpreted as creating a scenario where one would have to plan the system as a N-1-1 without system adjustments. This would tax the computational power of even the most sophisticated entities leading to increased staff, redundant transmission equipment additional

computational equipment, and additional computing time.

Likes 0

Dislikes 0

Response

Angela Gaines - 1,3,5,6

Answer

Document Name

Comment

PGE - We don't understood this question.

Likes 0

Dislikes 0

Response

2c. If you identified one or more risks and identified a likelihood of “medium” or “high” is there a cost effective manner to reduce them rather than revising TPL-001-4 or is there an preferred approach to revising TPL-001-4 that takes into consideration cost effectiveness?

Please explain your response including descriptions of potential cost effective solutions and the associated benefits to reliability:

Angela Gaines - 1,3,5,6

Answer No

Document Name

Comment

NA

Likes 0

Dislikes 0

Response

Dennis Chastain - 1,3,5,6 - SERC, Group Name Tennessee Valley Authority

Answer No

Document Name

Comment

Revision of TPL-001-4 would be required if Section 215 is applied to stability analyses.

Likes 0

Dislikes 0

Response

Jeremy Voll - 1,3,5,6

Answer No

Document Name

Comment

Revising the TPL-001-4 standard to evaluate P2 stability impacts of long lead-time equipment associated with identified IROLs seems reasonable.

Likes 0

Dislikes 0

Response	
Colby Bellville - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	No
Document Name	
Comment	
Although the risk is relatively low the reliability impact could be significant. The cost of analysis does not appear to be very high. The benefit to reliability would be the understanding of locations where lack of spare equipment may have a significant reliability impact. Duke Energy believes the suggested studies should be performed.	
Likes	0
Dislikes	0
Response	
Ginette Lacasse - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body	
Answer	No
Document Name	
Comment	
Not applicable	
Likes	0
Dislikes	0
Response	
Yvonne McMackin - 1,4,5	
Answer	No
Document Name	
Comment	
Reliability is one of the most important factors to the District. Impacts on the overall reliability of the BES are not allowed. Cost has not been considered when planned outages are determined.	
Likes	0

Dislikes 0

Response

Chris Gowder - 3,4,5,6 - FRCC, Group Name FMPA

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Shannon Mickens - 2 - SPP RE, Group Name SPP Standards Review Group

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Lauren Price - 1 - MRO,RF

Answer

No

Document Name

Comment

Likes 0

Dislikes 0

Response

Oliver Burke - 1,5

Answer

No

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - 1	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Bertha Ellen Watkins - 1	
Answer	Yes
Document Name	
Comment	
<p>The concerns of instability, uncontrolled separation, and cascading failures of these Facilities are likely caused by an exceedance of an Interconnected Reliability Operating Limits, and usually under conditions representative of a P2 category study. We feel studies under these parameters are reasonable.</p>	
Likes 0	
Dislikes 0	
Response	
Brian Van Gheem - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators	
Answer	Yes
Document Name	
Comment	

The concerns of instability, uncontrolled separation, and cascading failures of these Facilities are likely caused by an exceedance of an Interconnected Reliability Operating Limits, and usually under conditions representative of a P2 category study. We feel studies under these parameters are reasonable.

Likes 0

Dislikes 0

Response

Karen Webb - 1,3,5

Answer

Yes

Document Name

Comment

Use existing operations outage studies performed for TOP standards to point to the need or create a mechanism for which the outages would be studied for stability on an "as needed" basis.

Likes 0

Dislikes 0

Response

Scott Langston - 1,3,5

Answer

Yes

Document Name

Comment

Utilize existing operations outage studies performed for TOP standards to point to the need or create a mechanism for which the outages would be studied for stability on an "as needed" basis.

Likes 0

Dislikes 0

Response

larry brusseau - 1

Answer

Yes

Document Name

Comment

Revising the TPL-001-4 standard to evaluate P2 stability impacts of long lead-time equipment associated with identified IROLs seems reasonable.

Likes 0

Dislikes 0

Response

Sandra Shaffer - 6

Answer

Yes

Document Name

Comment

Use of historical outage probabilities in development of the standard to remove the requirement for evaluating the unavailability of long-lead equipment for lower probability failures, including series and shunt capacitors, series and shunt reactors and dynamic reactive support devices.

Likes 0

Dislikes 0

Response

Emily Rousseau - 1,2,3,4,5,6 - MRO

Answer

Yes

Document Name

Comment

Revising the TPL-001-4 standard to evaluate P2 stability impacts of long lead-time equipment associated with identified IROLs seems reasonable.

The NSRF thinks our key comment on cost-effectiveness and risk is where the most effective solution to accommodate maintenance of a particular facility is construction. If you wait to capture the issue in the operating horizon, you either increase the risk and have to rely on operating guides, re-dispatch, and workarounds; or you shift the work to some other period where dispatch cost is higher.

Likes 0

Dislikes 0

Response

Leonard Kula - 2

Answer

Yes

Document Name

Comment

A cost effective manner to address the potential risk could be to include stability analyses for the P0, P1 and P2 events when evaluating the conditions that the system is expected to experience during the possible unavailability of the long lead time equipment.

Likes 0

Dislikes 0

Response

Michelle Amarantos - 1,3,5,6

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Glenn Pressler - 1,3,5

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

David Greene - 10, Group Name SERC PSS

Answer

Document Name

Comment

There is very little risk and no need to modify TPL-001-4 for this.

The comments expressed herein represent a consensus of the views of the above-named members of the SERC EC Planning Standards Subcommittee only and should not be construed as the position of SERC Reliability Corporation, its board, or its officers.

Likes 0

Dislikes 0

Response

Daniela Hammons - 1 - Texas RE

Answer

Document Name

Comment

Not Applicable.

Likes 0

Dislikes 0

Response

Rachel Coyne - 10

Answer

Document Name

Comment

A change in process would be required and needs to be supported in some manner in order to be effective. The amount of change would dictate cost. The real cost of not doing less than six months would require an in-depth look at the monetary impacts of delayed projects and changes in generation patterns to accommodate operation horizon events caused by outages not studied. History tends to indicate that costs are cheaper when planned (proactively) early than when reactive measures are taken to solve issues.

Likes 0

Dislikes 0

Response

Marsha Morgan - 1,3,5,6 - SERC, Group Name Southern Company

Answer

Document Name

Comment

There is very little risk and no need to modify TPL-001-4 for this.

Likes 0

Dislikes 0

Response